The Builder.

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The Good Work in Leicester-square.

LEICESTER Fields, says the *Country Craftsman* of April 16th, 1737, "is going to be fitted up in a very elegant manner, a new wall and rails to be erected all round, and a basin in the middle, after the manner of Lincoln's-inn-fields, and is to be done by a voluntary subscription of the inhabitants." This was seventeen years before the ill-fated statue of George II. was put up (1754), and varied have been the fortunes of the "Fields" since then. It was left to Mr. Albert Grant, M.P., to rescue them from the utterly discreditable and disgraceful state to which vested interests and the divine right of individuals to damage their neighbours within the law had brought them. The daily papers have made known far and wide what has been done, and have justly given a wide popularity to the liberal and far-seeing donor. We must, nevertheless, repeat some of the particulars, for the sake of easy reference hereafter. In the midst of a difficulty Mr. Grant came forward, purchased the various interests in the square, at the cost of about 13,000*l.*, and made a gift of it to the inhabitants of the metropolis. The square has been laid out and charmingly ornamented. The garden is enclosed by bronzed and gilt railings upon a marble base-ment, and the grounds are tastefully and artistically displayed. Mr. James Knowles was the architect, and has done his work well. Mr. John Gibson, jun., was the landscape gardener; and Mr. J. Nurese clerk of the works. In the midst of the square is the Shakspeare Fountain,—a large marble basin and fountain in the centre, the water proceeding from the mouths of dolphins at the four corners, the whole being surmounted by a statue of Shakspeare. The material of this work is Sicilian marble. The statue, which has been executed by Signor Fontana, is a slightly modified version of the Westminster Abbey statue, which was designed by Kent, the architect, in the reign of George II., and carved by the painstaking Peter Scheemakers, who sold his shirt to pay his last expenses on the road to Rome. The well-known statue of the Abbey was chosen as the traditional Shakspeare of England, which everybody would recognise at a glance without any label.

And Shakspeare came to be chosen of all as the first of a series of great Englishmen who had no open-air statues yet in London,—the first English poet. The argument used as to the adoption of Scheemakers' statue is not without force; nevertheless, we should have been better pleased to see a new creation. Of the fountain as a whole we give a view,* and our readers may be glad to know the idea the architect sought to embody in designing it. His notion was, he tells us, to represent the poet standing, colossal and inaccessible, cut off from the rest of the world, *in himself*, as his statue is by the circumambient water, but brought near to all men in his works,—emblematized by the grass and flowers which spring up round the margin of the fountain, and which its water continually nourishes and bedews.

The dolphins are an allusion to the Arion-like attraction of the great bard for the "sane and simple" animal part of us, and the quotation, "There is no darkness but ignorance," to his deep and keen spiritual insight. It was a responsible thing to select and record the words to be always in Shakspeare's mouth, addressed to the world in the midst of London; but it is to be hoped that he himself, if his spirit *walked*, would admit their appropriateness to the current time.

Leaving the fountain, the remainder of the enclosure is filled with turf and beds of flowers, while the four corners are occupied by life-size busts of four eminent men who formerly lived in or near it, standing on pedestals of Aberdeen granite, with the name inscribed in gold letters. These are as follow:—Sir Joshua Reynolds, by Mr. H. Weekes; Hunter, by Mr. T. Woolner, R.A.; Hogarth, by Mr. J. Durham, A.R.A.; and Sir Isaac Newton, by Mr. W. Calder Marshall, R.A. Each of these busts, all bold and effective works, is backed by raised beds of evergreens and flowers while the whole garden is surrounded by a handsome railing, as we have said, in wrought and cast iron, painted a chocolate tint, much relieved by gilding, and resting on Silician marble. The foot-path round the square has been paved with the compressed asphalte of the Val de Travers Asphalte Company. The total cost of the work is estimated at about 27,250*l.*, including the land.

The details of this cost will not be without interest:—

Iron railing, gates, and lamps, executed by the Coalbrook-dale Company, painted and gilded by Messrs. Thorn & Co., with silicate oxide paint; cost about	£1,400	0	0
The marble kerb, executed by Messrs. Thorn & Co.; about	800	0	0
Asphalte pathway and new granite kerb; about	450	0	0
The marble fountain, consisting of the basin and surrounding consoles and vases, executed by Messrs. Walker, Emley, & Beall; the pedestal and foundations by Messrs. Thorn; the statue by Signor Fontana; the dolphins by Mr. Daymond; and the water works by Messrs. Easton & Anderson; about	4,500	0	0
The four granite pedestals for busts, executed by Macdonald, Field, & Co.; about	160	0	0
The four marble busts; say	1,400	0	0
Laying out and planting of garden, executed by Mr. Gibson; about	4,000	0	0
Garden seats and iron bordering to grass, executed by Messrs. Kennard & Co.; about	250	0	0
Laying on gas and water; about	200	0	0
Sundries	1,100	0	0
	£14,250	0	0
Cost of land, about	13,000	0	0
Total	£27,250	0	0

The time occupied in these works has been very short,—in some respects, we have no hesitation in saying, unprecedentedly so.

The designs were only begun by the architect in February last, and by the time these were ready about three months were all that could be allowed for their execution by Mr. Grant, who was determined to open the square to the public as early in the summer as possible. The various contractors, however, proved themselves equal to the occasion, and bound under penalties of 50*l.* per day for overtime, in no case transgressed their limit; on the contary, in several cases claimed the bonus which Mr. Grant had offered for anticipating the contract date.

The work of preparing for the garden was very severe. The whole enclosure of the square was a mass of old foundations,—concrete and brickwork. These were in part the remains of Mr. Wyld's "Great Globe," and in part, according to those concerned, the older remains of the original Leicester House, which had long since totally disappeared from above ground.

The figure of Shakspeare was completed in the time allowed only by the indefatigable exertions of Signor Fontana, who worked literally night and day, assisted by skilled workmen brought over for the purpose from Italy and France. The Sicilian marble, which has been employed throughout for the sculptures and the architectural parts of the work, is of the same description as that used in the Prince Consort memorial in Hyde Park. There seems reason to believe it will stand the English climate out of doors, and unprotected, which is not the case with other marble. Hydrants have been placed at convenient spots, from which a hose can be taken to every portion of the square; and, as the water is always laid on at high pressure, the most ordinary care in the use of this hose will keep the whole of the marble work clean.

Marble was chosen for the outside kerb in order to secure a permanently white framework for the railings and the square, instead of the dingy and mouldy edging which prevails throughout London in similar positions.

Mr. Grant himself has been indefatigable in his personal attention to the mass of detail of all sorts and descriptions which had to be grappled with, and has taken as careful and minute an interest in it as if the works were entirely for his own private enjoyment and occupation. It is a pleasant coincidence for the architect who has been here engaged, that he should have been called upon to build a house for the greatest living poet (Mr. Tennyson), and a monument to the greatest of all poets. Mr. Tennyson, by the way, laid the first stone of his house on Shakspeare's birthday.

We mentioned with a reservation the statement that parts of the foundations found in forming the garden were remains of the original Leicester House, because we are not quite certain that this is correct. Leicester House appears to have been at the side of the enclosed area, not in it. Strype, as quoted by Peter Cunningham, calls,—"Leicester Fields, a very handsome, large square, enclosed with rails, and graced on all sides with good built houses, well inhabited, and resorted unto by gentry, especially the side towards the north, where the houses are larger; amongst which is Leicester House, the seat of the Earl of Leicester, and the house adjoining to it, inhabited by the Earl of Aylesbury."

Hogarth, already named, lived on the east side of the square, in a house which was afterwards absorbed in the Sablonnière Hotel; John Hunter lived at the next house, and Sir Joshua Reynolds at No. 47 on the west side, afterwards occupied as the Western Literary and Scientific Institution,* and now Messrs. Puttick & Simpson's Auction Rooms. Sir Isaac Newton dwelt hard by. Stories of the square, and the notable dwellers in the neighbourhood, have been told in various quarters, *apropos*, of recent doings, but no where more effectively and pleasantly than in a paper in last month's *Temple Bar*, which we may without hesitation ascribe to Dr. Doran. Through twenty-three pages the erudite and amusing Doctor relates anecdote after anecdote, illustrating his subject. Of course, he talks of old Leicester House. The popular idea of the Earl of Leicester, says he, is Elizabeth's Robert Dudley. Well, that earl had a sister, Mary, who married Sir Henry Sydney, of Penshurst. This couple had a son, whom they called Robert, and whom King James created, at successive periods, Baron Sydney, Viscount Lisle, and Earl of Leicester. And this Earl Robert had a son, who, in 1626, succeeded to the earldom; and to him King Charles, in 1631, gave Swan Close and

* See p. 567.

* The lecture theatre of this Institution was constructed, in very early days, by the conductor of this journal, and had a certain reputation for good acoustic qualities. The Institution did much good in its time.

some other part of the lammas land, whereon he erected the once famous Leicester House.

This last Robert was the father of the famous patriot, Algernon Sydney; also of the handsome Henry. He is still more famous as having for daughter Dorothy, the "Sacharissa," with whom Waller pretended to be in love; and he gave his family name to Sydney Alley. When, some years later, the Earl of Salisbury (Viscount Cranbourn) built a house in the neighbourhood, he partly copied the other earl's example, and called the road which led to his mansion Cranbourn Alley. The lammas land thus given away was land which was open to the poor after Lammastide. Cunningham quotes two entries from the St. Martin's rate-books to this effect:—"To received of the Honble. Earle of Leicester for ye Lamas of the ground that adjoins the Military Wall, 3l." The "military wall" was the boundary of the Wormwood Scrubs of that day. The earl also had to pay "for the lamas of the ground whereon his house and garden are, and the field that is before his house, near to Swan Close." The field before his house is now Leicester-square, "but Swan Close," says Peter, "is quite unknown." Lord Carlisle's letter in the State Paper Office states that the house was to be built "upon Swan Close." It was a palatial mansion, that old Leicester House. It half filled the northern side of the present square, on the eastern half of that side. Its noble gardens extended beyond the present Lisle-street. At first that street reached only to the garden-wall of Leicester House. When the garden itself disappeared the street was lengthened. It was a street full of "quality," and foreign ambassadors thought themselves lodged in a way not to dishonour their masters if they could only secure a mansion in Lisle-street.

On the 7th of February, 1662, the only queen that ever lived in Drury-lane,—the Queen of Bohemia, daughter of James I.,—removed from Drury House and its pleasant gardens, now occupied by houses and streets, at the side of the Olympic Theatre, to Leicester House.

Six years later, in 1668, the French ambassador, Colbert, occupied Leicester House. Pepys relates how he left a joyous dinner early, on the 21st of October, to join Lord Brouncker, the president, and other members of the Royal Society, in paying a formal return visit to Colbert; but the party had started before Pepys arrived at the Society's rooms. The little man hastened after them; but they were "gone in" and "up," and Pepys was too late to be admitted. It is easy to guess why the Royal Society honoured themselves by honouring Colbert. The great Frenchman was something more than a mere Marquis de Segnelai. Who remembers M. le Marquis? Who does not know Colbert,—the pupil of Mazarin, the astute politician, the sharp finance minister, the patron,—nay, the pilot,—of the arts and sciences in France? The builder of the French Royal Observatory, and the founder of the Academies of Painting and Sculpture and of the Sciences in France, was just the man, says Dr. Doran, to pay the first visit to the Royal Society.

Leicester House was, luckily, to let when the Prince of Wales quarrelled with his father, George I. In that house the Prince set up a rival court, against attending which the *London Gazette* thundered dreadful prohibitions. But St. James's was dull; Leicester House was "jolly"; and the fields were "all alive" with spectators "hooraying" the arrivals. Most celebrated among the Leicester House maids of honour was the young, bright, silvery-laughing, witty, well-bred girl, who could not only spell, but could construe Cæsar—the maid of whom Chesterfield wrote,—

> "Should the Pope himself go roaming,
> He would follow dear Molly Lepell."

And there rattled that other Mary—Mary Bellenden, laughing at all her lovers, the little, faithless Prince himself at the head of them.

During the tenancy of Frederick, Prince of Wales, Leicester House was the scene of political intrigues and of ordinary private life occurrences: Carlton House was more for state and entertainment. Leicester House and Savile House, which had been added to the former, had their joyous scenes also. The story of the private theatricals carried on in either mansion has been often told. The actors were, for the most part, the Prince's children. He who was afterwards George III. was among the best of the players.

Later on, Dr. Doran refers to an incident at one of Reynolds's suppers in the square that brought out Johnson. The rather plain sister of the artist had been called upon by the company, after supper, as the custom was, to give a toast. She hesitated, and was accordingly required, again according to custom, to give the ugliest man she knew. In a moment the name of Oliver Goldsmith dropped from her lips, and immediately a sympathising lady on the opposite side of the table rose and shook hands with Miss Reynolds across the table. Johnson had heard the expression, and had also marked the pantomimic performance of sympathy, and he capped both by a remark which set the table in a roar, and which was to an effect that cut smartly in three ways. "Thus," said he, "the ancients, on the commencement of their friendships, used to sacrifice a beast betwixt them." The affair ends prettily. A few days after the "Traveller" was published, Johnson read it aloud from beginning to end to delighted hearers, of whom Miss Reynolds was one. As Johnson closed the book, she emphatically remarked, "Well, I never more shall think Dr. Goldsmith ugly." Her brother painted the portrait of the new poet, in the Octagon Room in the square; and the mezzotinto engraving of it was speedily all over the town.

The Alhambra, formerly the Panopticon, on the east side of the square, would supply some modern anecdotes from behind the scenes; but we will not venture upon them. In all the history of the square there is no better thing to record than its present change and presentation to the public,—a grant from A. Grant, as a joker might say, which all approve and applaud. One word more and that an appeal. Let the public preserve what belongs to the public. The same liberal improver has his eye upon other arid deserts. He has already offered, as we happen to know, to deal as he has dealt with Leicester-square with another well-known square a little to the north, and any transgression of propriety in the garden already formed might materially check these good intentions.

Leicester-square was formally opened on Thursday; and by the time these lines reach our readers, the hoardings will have been removed and the gates unclosed for good and all.

SANITARY AND OTHER APPLIANCES AT THE INTERNATIONAL EXHIBITION.

THE low passage behind the refreshment-rooms, described in the Exhibition Catalogue as the "south corridor," contains objects uninviting in exterior certainly, but which would not be passed over so indifferently by visitors if they could recognise the fact that their own health, and that of thousands of others, depends in a great degree on the execution of such work as draining-pipes, and junctions and ventilating appliances. Two ideas which the great extension of systems of drainage and of water supply has brought prominently forward are the necessity for flushing sewers, and the desirability of preventing waste of water in large towns. Mr. Rogers Field, of Cannon-row, exhibits a patent self-acting flush tank (iron), for flushing drains, "disposing of house slops," &c. This latter scheme consists in letting the waste from the sink accumulate in the flushing cistern till the latter is filled, when it is let out and sent through an open-jointed drain to percolate into and fertilise the land. If this were adopted, the open drain should have a pretty good fall, so as to ensure the bulk of the waste water being taken sufficiently away from the house walls before percolating, otherwise this "sub-irrigation" might turn into a serious evil in the form of damp walls and unhealthy deposits in the foundations. Mr. R. W. P. Birch, Victoria-street, sends a self-acting penstock for flushing drains, the action of which, however, is not fully exemplified in the model. Another self-acting flushing tank is exhibited by Mr. A. Richmond, of Bishop's Hall. Here the requisite action at the right moment is produced by the water, when the cistern is full, running over into an iron bucket suspended in a separate compartment of the cistern, the bucket being attached to one end of a lever which is depressed by the weight of the water, and the other end of which raises the plug in the bottom of the main cistern. Water-waste preventers are very numerous, and the demand there evidently is for contrivances of this kind is a measure of the difficulty experienced now in supplying our large and overgrowing towns with an adequate amount of the pure element, and the strictness of the official supervision which has to be exercised over it. A simple form is that exhibited by Messrs. Dennis & Co., of Chelmsford, where the supply depends on the filling of the cistern which supplies each flush, and which can be timed so as to leave from one to four minutes before a second flush can be obtained. Mr. R. Ellis (Stoke Newington), Mr. Harling (King's-cross), Mr. Edgar Jobson (Derby), and others, exhibit appliances with the same object; that of the last-mentioned exhibitor is specialised as "valveless." Mr. Bailey (Holborn) sends a very elaborate-looking apparatus for securing efficient ventilation by means of "an extractor pump with inlet and outlet valves, in communication with the chamber to be ventilated, which draws out the vitiated air, and expels it through any channel provided." Practically, of course, such a scheme can only be applied to large public buildings, where it would be worth while to have engine or manual power at work for the purpose; private dwellings must be made to ventilate themselves. The apparatus was not working, so we cannot further judge of its efficiency. The "London and General Water Purifying Company" exhibit portable cistern filters; one fitted in a galvanised iron tank, for use on board a yacht; among others, also, a decorative design which they name a "Bacchanalian filter," from the nature of the figures in relief,—a name which seems a little out of keeping with the preparation of a draught with which Bacchus at least has nothing to do. Messrs. Doulton & Co. send a quantity of what they term "sanitary ware"—pipes, valves, traps, &c. The question of the adequate jointing of draining-pipes is receiving much attention at the hands of this firm; and they show two specimens of pipe put together in three lengths (one of these is a 21 in. pipe), which they assure us have been raised and dropped into position again, weighted in the middle, &c., without impairing the soundness of the joint. A specialty now manufactured and here shown by Messrs. Doulton is "Stanford's patent joint for stoneware pipes," invented with the view of ensuring a sound and tight joint in wet and bad ground, where it is most required, but where there is also the most difficulty in making it. The object is to avoid the necessity of a cement joint, by making the spigot of one pipe fit mechanically into the socket of the one next it. As this cannot be attained at all perfectly in earthenware, a ring "of cheap and durable material" is cast into the spigot and socket of the pipes, which, when put together, fit accurately into each other, and require no more than the mere insertion. The rings being made "of a spherical form" (spherical *section*, we presume), a certain amount of settlement may take place without destroying the accuracy of the joint. Some of the water-filters of this firm combine the ornamental with the useful very happily. The charcoal ventilators for drains with wire basket for holding and removing the charcoal when required, show how easily and comparatively economically this sanitary invention may be applied to drain and sewer ventilation. Cheavin's "rapid water-filters" form a feature in the collection in this part of the building; and we may mention Latham's sewer ventilators in red earthenware, also fitted with charcoal baskets with movable covered tops and an upcast outlet bent from the side of the charcoal chamber. Drain-pipes are sent by the Bourne Valley Pottery Company, by the Branksea Island Co., by Mr. Hamblet (West Bromwich), and others. Messrs. Brooke & Son's sewer ventilators are on the same principle as those of Mr. Latham, but with vertical shafts for connexion with deep drains. Herr Galasse-Ketin (Rue Manchester, Brussels) shows a very efficient joint for iron piping, with a strong double flanged ring with rebates fitting into corresponding rebates on the pipe ends, the flanges stiffening the whole and forming a protection against any relaxation or opening of the joint from the leverage power of an unequally bedded pipe. Looking over these articles, one cannot but reflect how much there is of care and ingenuity at the disposal of those who wish, or ought to wish, for thorough and satisfactory drainage, if it were only utilised to the extent to which it might be.

Before leaving this corridor we should mention a very simple and ingenious form of ventilator, impervious to rain, to replace the old louvre system, which is, as we all know, by no means so: this is formed of a series of upright mouldings of sheet iron, in two sets, inner and outer, the outer alternating with and overlapping the inner; the centre space of the inner moulding forms a deep vertical hollow

like that of a Gothic jamb-moulding, which forms a channel to convey all water at once down on to the weathering of the sill at the bottom. A spray jet placed opposite this gives the opportunity of ocular proof that this ventilator is quite impervious to a driving rain.

Coming into Room XXIII., we notice a large collection of Messrs. Lambert & Son's valves, taps, and so on, which have long enjoyed high credit for good principle and good workmanship: this the specimens here shown appear quite calculated to keep up. Mr. Jennings's automatic disinfectant supply for water-closets is one of those recent pieces of ingenuity which show how difficult it is to keep pace with our sanitary demands in large towns in these respects. Our civilisation demands more and more exemption from the concomitant evils and *désagréments* arising from "matter in the wrong place," and what we shall ultimately come to in the way of these kind of provisions it is difficult to foretell; as difficult as to imagine how our fathers contrived to exist in those coarser days, when facts as well as names were so much more nakedly dealt with. We believe that out of all the experiments in these difficult and, to many, repulsive subjects, will be evolved some larger and simpler principle of dealing with refuse animal matter than any that exists at present, and that perhaps we may even come to find that everything has its use in the world, and is not, in its right place, contemptible or odious. In the mean time, such a contrivance as this of Mr. Jennings's, by which a supply of chloralum is brought down to the closet-basin by the same action which discharges its contents, seems (in its present form, at least) rather a makeshift, which at least can scarcely be available for universal application. One or two other exhibitors, Mr. Banner in particular, send specimens of the same kind of contrivance. It is perhaps with chemistry rather than with mechanics that the ultimate solution of this class of sanitary problems rests; but the solution has not yet been brought at all events into a universally applicable and economical system. Messrs. Smeaton's remarkable combination bath, with different jets managed by different levers, we noticed in our article on the opening of the Exhibition; it is still in full play, to the great edification of spectators, and looks remarkably inviting on a hot and dusty day. Such a "bathing machine" as this, however, is also of course a luxury for the few. In an opposite sense we may notice the "self-acting cinder-sifting ash closet" exhibited by the Sanitary and Economic Manure Company of Manchester," who, we believe, are doing a good deal, though with only very partial encouragement, to promote a more scientific treatment of refuse matter on the banks of the Irwell. The contrivance here shown consists in a slanting wire "screen" between the ashpit and the closet portion, against which everything intended for the ashpit is thrown, the ashes descending into their proper receptacle and the dust going through the screen and falling on the soil under the closet seat, thus acting as a deodoriser. Among other specimens of closet apparatus are the self-acting dry closets shown by the "Peat Engineering and Sewage Filtration Company," and which are specified as "noiseless," though in what particular respect they are more noiseless than other dry closets is not immediately apparent; no doubt a noiseless action is a great advantage in small tenements, where the closet cannot be kept much removed from the dwelling-rooms. Those by Parker, of Woodstock, are remarkably simple and durable in make, with removable tin pans beneath. This does away with one chance of derangement in the working, and would supply very suitably and inexpensively the wants of houses of a low rental figure. The arrangement shown by Messrs. Caffal & Co., Fleet-street, for "inodorous commodes," is very ingenious; the seat being self-closing by two slides, which meet over the pan, and separate on the depression of the seat: at the same time one is always inclined to think that the simpler these things are, and therefore the less liable to derangement, the better; and we do not know that the articles exhibited here show in the main any improvement on those of the originator of the system, exhibited by the Moule Patent Earth Closet Company. These appear to us to keep the mean very well between too much and too little mechanical ingenuity, and to act admirably. In connexion with the subject we may mention Smeaton's "Waste Not" water-closets, in a specimen of which here the action of the serving cistern, with its apparatus, is shown in a glass tank over the model, and is beautifully complete and neat in its working; the valve cover of the service-pipe being raised by the vacuum caused in a small cylinder over it, the piston of which is raised by the pull of the closet-handle; the air is then allowed gradually to introduce itself, and the cover descends into its place after allowing time for a sufficient flush of water.

Among things connected with sewer and other ventilation we notice Mr. W. B. Head's arrangement for the ventilation of drains through a pipe carried from just below the closet-trap to the roof or near it, with a carbon air-filter in the head, which is made somewhat like the head of a rain-spout, and may very easily be made to range with the rain-spouts, so as not to attract attention or cause any unsightly appearance. A model of the Albert improved dwellings at Spitalfields shows a simple method of insuring outlet ventilation from the rooms by carrying up one vitiated air-shaft running behind all the fireplaces which are over each other on each floor; one or two at least of these being always in use, the air-shaft is kept at a temperature which insures a current; there is an outlet into it from each room, over the fireplace, and the Company's energetic secretary, Mr. Gatliff, states that this simple expedient has acted well, and required no modification for twenty years.

Of dealing with sewage on a large scale, we are shown an example in the drawings and model of the "General Sewage and Manure Company's" works at Coventry. The model shows the sewage extractor, in a tank adjoining the large reservoir, and from which the sewage is passed into another tank, to be operated upon by the drier, the main feature of which is a large series of radiating open frames, arranged in wheel fashion, being, in fact, a very large and broad wheel, which takes up the sewage matter for drying; the drying-wheel being turned by the same power as, and working simultaneously with, the extractor.

Messrs. Gascoyne exhibit a patent lead D trap, cast so as to give a large waterway and a less liability than usual to the retention of deposit; still, we cannot think that such a trap as this can ever be really effective in ensuring immunity from effluvium without the assistance of thorough ventilation of the drains, and another outlet for the pressure of foul gases, which otherwise will and do force themselves through the water of the trap. In fact, the D or S trap should be considered as a safeguard after everything else has been done to divert the effluvium in an innocuous direction. A great number of lavatory services are on view here, of which those of Mr. Jennings are so well known and so widely approved, as scarcely to need mention; the work of Messrs. John Warner & Sons is exceedingly good, especially in the matter of baths; and Stidder & Co.'s "tip-up" lavatories deserve praise for excellent workmanship and convenient arrangement. *Apropos* of baths, we may notice also a model of a safety bathing and swimming saloon for deep water, by Mr. Alfred Rae: this is in the form of a ship's hull, of square and heavy lines, and filled inside with a sloping open iron floor, through which the water freely flows, while at the same time the unlearned swimmer has all the safety of a shore bath with a solid floor.

Improved railway trucks for cattle may legitimately come into the category of sanitary apparatus, and there are a number of models here, mainly intended to exhibit plans for placing food and water for the cattle in transit, so as not to be in the way, or take up too much space, and for providing safe and easy ingress and exit for the animals. Some of these are arranged as stalls inside; but this arrangement, not economical at all, is scarcely necessary, unless with very valuable show cattle; and those trucks which have an unencumbered floor, and food and water receptacles fixed in the sides, appear to us the most workable. In connexion with the subject, and as they are in the same room, we may mention a very sensible idea for a railway carriage-door latch, in which the latch is visible, and therefore it is always evident whether or not the door is securely fastened; the latch shoots with a spring on closing the door so as to require no turning of the handle. The Belgian method of arranging and extracting railway tickets from the rack is also exhibited: each bundle of tickets is loosely placed in a compartment of its own, which is then partially closed by a small bar at each side, the bottom of the compartment by a slip of metal with a projecting tongue; the clerk draws this out, as far as it will go, and brings with it the lowest of the pile of tickets; on letting go the tongue the metal springs back, leaving the ticket in his hand: this can be worked with great ease and rapidity. A similar class of "save-time" invention is that exhibited by Col. Tomline for rapidity in printing where no out-of-the-way words are required, the types being cast in words instead of in letters, and arranged so as to place ready to the printer's hand a great number of the leading words of the language. Whether this could be very well worked in conjunction with the letter system, without confusion, is the question. We should think it could be.

The patent boat-disengaging apparatus o Messrs. Hill & Clark, of which a model is exhibited, appears to be one of the simplest and most direct ways of attaining its end that could be hit upon. Our non-nautical readers may not all be aware that one of the great dangers of lowering boats at sea arose from the difficulty of ensuring the simultaneous working of the fall tackle at each end, so as to bring the boat level on the water instead of sending her in bow or stern first, which on the old system, especially when a boat had to be lowered in a hurry, often happened with disastrous results. Several patents have been taken out to obviate these catastrophes: this one is peculiarly simple; the two ropes by which the boat is hung, instead of being secured to her fore and aft, are passed through two rings and brought towards each other in the centre, stretched tight and connected by a coil of thinner rope, passed backwards and forwards several times through rings in the ends of the main ropes. All that is required to lower the boat is to loose the knot of this centre coil, and let it run, with proper care, which practically amounts to gradually lengthening the ropes by which the boat is suspended, in such a manner as to ensure an equal lengthening at both ends. This can be worked by one man, apparently, from the centre of the boat. The principle might be applicable to other matters besides boat-lowering.

Though it is not a sanitary matter, we may mention, in conclusion, that in this gallery is a model showing the principle of perspective, by means of a model of a house, the lines of which are drawn in perspective on a piece of glass placed in front of it, and representing the "plane of delineation"; an eye-piece being placed in the proper focus, through which all the lines of the drawing are seen falling in their place on the corresponding lines of the object. Such a thing as this would be valuable in schools, and it is just possible that a good many fair heads (for the ladies seemed to pay great attention to this) may have got their first notion of what is the real mystery of perspective drawing, during their passage through Gallery XXIII.

THE METROPOLITAN BUILDINGS BILL.

REPORT OF THE COMMITTEE.

IN the *Builder* of last week, having given the evidence on either side to the close, we informed our readers that the committee adjourned until Wednesday last for the purpose of taking into consideration the general principles of the Bill.

When the committee re-assembled on Wednesday, the lobby presented an unusually active aspect. It was manifest, from the various groups engaged in conversation in the lobby, that the Bill by the several parties interested, was regarded as one of more than ordinary importance. Engineers, architects, and surveyors were present in large numbers, in addition to numerous other interests involved in the Bill. From twelve o'clock (the hour when the committee assembled), until about half-past three, when the public were called in to hear the decision of the committee on the main principles of the Bill, the grave importance of the powers sought by the Metropolitan Board was evinced by the earnestness of the discussion which prevailed, and by the varied and opposite opinions which were manifested.

A little after half-past three o'clock the doors of the committee-room were opened to the parties interested, when the chairman said that he had to read the resolutions, which, after considerable deliberations, had been agreed to by the committee, and which might possibly be a guide to future action on the part of those who were responsible for the Bill. With reference to the general principles of the Bill he said

that the committee, in arriving at their decision, had embodied them in a series of resolutions, which he was instructed to read to the parties. He then read the following resolutions:—

"That it is not desirable to fix any limit as to the height of buildings in new streets, above 50 ft. wide.

Secondly. That it is not desirable to fix any limits as to cubical contents in buildings, other than warehouses.

Thirdly. That where a building is used partly as a store for goods, and partly as a shop for selling goods by retail, the portions used for storing goods must be regarded as a warehouse, and subject to the limitations as to cubical contents provided in the Act.

Fourthly. That with regard to district surveyors, their status should remain the same as under the former Acts of Parliament, the power of appointment, suspension, or dismissal resting with the Metropolitan Board of Works; but that the Board shall have power to institute proceedings before a magistrate in regard to any question of dispute arising between a district surveyor and a builder or owner of property, or in regard to any matter connected with the discharge of the duties of the district surveyor, in which they think the public interest is involved.

Fifthly. That the district surveyor, or the Metropolitan Board, shall have full power to stop the progress of any building in which the materials or construction is calculated to be dangerous or injurious to health, and to summon the builder or owner before the magistrate."

The committee further signified their wish that the schedules to the Bill should, as far as practicable, be incorporated in the Bill itself.

The chairman, after reading the above resolutions, stated that he was requested by the committee also to state that in the course of the inquiry the committee had taken into their consideration the great number of clauses in the Bill, more especially that in reference to the district surveyors, in which occurred the sentence "unless the Board shall otherwise direct." The wish of the committee was that the dispensing power of the Board would be better provided for by a general clause which should point out the nature of the case in reference to which the special power of the Board should be limited. The committee also wished him to state to the promoters of the Bill that it appeared to them that in several clauses of the Bill there were alterations in language without any material alteration of the existing law, and they thought it desirable that the old language should, as far as practicable, be adhered to, and that scope should not be given for new questions, arising from the unnecessary use of new language. He was further desired to state, on behalf of the committee, that they thought, after the intimation which it had been his duty to convey, the Metropolitan Board would require some time for deliberation as to the form and method in which the resolutions which had been submitted should be carried out; and they, therefore, proposed to adjourn the further proceedings until Tuesday next. It was, however, possible that the adjournment to Tuesday would not be sufficiently long to enable the Metropolitan Board of Works to deliberate upon the resolutions at which the committee had thought it their duty to arrive, and in that case, if their clerk would communicate with the committee, they would be glad to arrange for a still further adjournment.

The proceedings of the day then closed.

The inference can scarcely be avoided that the Buildings Bill will not be passed this session.

THE PROPOSED NEW METROPOLITAN BUILDINGS AND MANAGEMENT BILL.

THE following letter has been addressed to the Select Committee of the House of Commons:—

"My Lords and Gentlemen,—I am an architect and surveyor, and some time since contemplated applying to be appointed a district surveyor; but when I found that the incomes from the districts varied, and that if I made any income worth talking of I should have to be very diligent,—be constantly on the look-out to see that no work went on without my supervision (because if it did I should get no fees),—I gave it up as being likely to be troublesome. I felt the system was too antiquated, and resembled too much the mode of living of the ancient Britons, i.e., the game must be hunted for, or there would be nothing to eat; but if you will kindly pass such a Bill as will enable the Metropolitan Board to pay the district surveyors by salary, then I may become a candidate, because it won't matter whether the builders' operations are looked up; or whether the district is all built over or not; there will be a fixed income whether little or much is doing, and I feel under such an arrangement I could take it easy, and make the builders love, entertain, and take me out to little pleasant treats.

There is also another part of the Act which you will oblige me by passing; I refer to the threescore relaxing clauses, as they are euphoniously phrased. I ask this favour because if I should fail in getting appointed a district surveyor, I may get elected to a seat at the Board, and being a surveyor, of course I could get on to the Building Act Committee; and as every one intending to build must ask permission first, and show us what they propose doing, why then I could object always to something (that line is a safe and simple course). The public would then see what relaxing clauses meant, and it would soon leak out who the Mephistophiles was, and people intending to build would come to me to prepare their drawings on account of my influence and position, and then I would change sides! Now supposing there were, say four of us on the Board, why we could divide the metropolis into four parts, and by means of a little judicious touting, the right man to apply to would soon become known, and we should secure a large proportion of the business; and supposing it was dubbed a conspiracy, what matters? Nothing succeeds like success!

1, *Pump-court.*" A. FOX.

SIR,—Permit me to call attention to some matters, which, if this Bill passes, will operate injuriously in a pecuniary sense, on some of the present district surveyors.

Many whose incomes have been small, and are improving, will be deprived of any augmentation, or chance of increase, by the proposed mode of compensation, which draws a hard and fast line, and effectually limits the income to its present shape: this would be by no means an equitable assessment.

Again, under the present Act he may, upon giving notice to the Board, practise professionally within the limits of his own district: this source of income is also cut off. A SURVEYOR.

REMOVAL OF THE LIVERPOOL TRAMWAYS.

A SPECIAL meeting of the Liverpool Town Council has been held to consider the question of retaining or doing away with the tramways in the town. A long discussion ensued, and it was ultimately resolved to give the company three months' notice to remove their tramways; but that if the company had any suggestion to make with the object of improving the condition of the lines the Corporation would give careful consideration to the proposal. Our metropolitan tramway companies had better take warning. There are some of them at least that require it, both as regards their roads and their cars; others are less objectionable, which only shows what can be done.

ASSOCIATION FOR IMPROVING THE HOMES OF THE POOR.

THE annual meeting of this Association, the object of which is to erect improved dwellings for the working classes, or to renovate the existing dwellings where practicable, combining in their construction and alteration the several improvements in drainage, ventilation, a due supply of water, and such other advantages as shall be calculated to render the sanitary conditions as complete as possible, has been held in the Board-room of the Association, 8, Finsbury-circus, E.C., when the directors presented their thirtieth report. The Right Hon. Lord Claude Hamilton, chairman, presided.

The report presented congratulated the shareholders upon the increased interest the public were displaying in the object to which their labours were directed, and also that her Majesty's Government had recognised the importance of the subject, and had pledged themselves to facilitate the erection of improved dwellings for those who are displaced by the introduction of railways and new streets. The directors announced the near approach to completion of the buildings now in course of erection in Farringdon-road, providing accommodation for 263 families, where 1,300 persons will be housed on 33,886 superficial feet of ground, of which area 15,971 feet are appliedas approaches to the building, and thus afford space for recreation and ventilation.

Of the rents due to the association,—12,257*l.*,—a deficiency of only 156*l.* had occurred, through vacancies. The death-rate in the dwellings belonging to the association, during the year, had been only 14 per 1,000, against 22 per 1,000 of the whole metropolis. The revenue account showed the profits of the year to be 5,675*l.* 2*s.* 1*d.*, sufficient to pay, free of income-tax, a 4½ per cent. dividend. The report was adopted. Mr. Symes wished to know why a like association, under Sir Sydney Waterlow, could pay a dividend of 6 per cent., and their association only 4½ per cent. Mr. Russell Scott said that the society referred to by the last speaker did not keep a proper debtor and credit account, but went upon the principle of valuation. A dividend of 4½ per cent. was declared.

THE HOMES OF THE LABOURING CLASSES.

LAST week Lord Shaftesbury presided at the annual meeting of the Society for Improving the Condition of the Labouring Classes, held at Willis's Rooms, St. James's. Mr. Charles Payne, the secretary, read a report of the society's work, showing its practical transactions during thirty years in the endeavour to improve the homes and habits not only of the lower classes of the working population of London, by converting some of the dens of London into habitable dwellings; at such rents, too, as could be afforded by the people for whom they were designed; and by supplying baths and washhouses; but also by rendering information and instructions to those who in other parts of the country desired to follow out the same class of practical usefulness. The society has acquired "properties" in the lowest parts of London, and these pay rent; but the improvements necessarily made in the dwellings; to fit them for healthful habitation lead to costs which are not covered by the rents paid; hence the society is in need of assistance from the charitable. The balance-sheet showed that the amounts received during the year from all sources reached the sum of 5,615*l.*, and with the balance left last year came to a total of 6,250*l.* The expenses of the lodging-houses, repairs, &c., took of this sum so much as to leave a balance of 490*l.* The real property in the hands of the society was estimated to amount to the sum of 35,348*l.*, and the general liabilities to 21,223*l.* Lord Shaftesbury expressed his gratification at the fact that the Government had undertaken to deal next year with the subject with which this society had been practically dealing so long and so well, and he trusted that the measure now promised would be a comprehensive one, for this was a matter which touched deeply and nearly the general welfare of the labouring classes. The society, he said, had done a great good work, and it had set an example which had been followed in many Continental cities, in America, and even in India. The Hon. W. F. Cowper-Temple moved the adoption of the report, and spoke of the ability with which it dealt with the practical social work carried out. Canon Nisbet seconded the motion. Dr. Ross, who supported it, stated, from his own experience in St. Giles's, facts which showed the benefits to the health and general well-being of the poor arising from their having good dwellings. The report was adopted *nem. con.* A vote of thanks to the chairman closed the proceedings.

WATERWORKS FOR CHICHESTER.

THE foundation stone of the engine-house for these works has been laid by Lord Henry G. Lennox, M.P. The inhabitants of this city have hitherto taken their water from wells, the purity of many of which has of late years been more than questioned. A well has been sunk at Fishbourne, about a mile and a half from the centre of Chichester, and at the depth of 22 ft. an abundant supply of what is stated to be excellent water was obtained. Though the works are commenced, the capital subscribed is not yet sufficient to warrant the directors in accepting contracts for the supply of the whole of the works, which will include, besides a well and engine-house at Fishbourne, a water-tower and reservoir on the Broyle. The contract, which has been entered into with Messrs. Hasell & Gambier, a firm of contractors having experience in this work, is to sink the well, build the engine-house, and lay a main of 8 in. iron pipes to the Market Cross—about a mile and a-half. This work, we believe, is to be executed within eight months from the present time.

GRACE,

AS A CHARACTERISTIC OF ARCHITECTURE, SCULPTURE, AND PAINTING.

IN the study of the principles of Art, whether in the specific case of the fine arts, ordinarily so called—Sculpture, Architecture, and Painting—or in the wider sense of that æsthetic truth which underlies every form of artistic expression, and holds up a mirror to reflect all that is most charming in nature; we have had occasion to remark, more than once, on the importance of an accurate use of technical language. Accuracy of speech, indeed, on any subject, is at once a consequence and a cause of clear ideas, and of a masterly grasp of the subject. But apart from the precision of technical terms, or from the general flow of poetic beauty of expression, lies the question of the central ideas that are indicated by words that are not in themselves technical, but become so in their use. By the examination of such terms it may be possible to detect, and to place before the student, that central idea in its actual purity. By so doing we make a decided step towards attaining a mastery of Art. We thus know more clearly what it is that we mean by certain terms. Knowing what we mean, we have advanced at least the first stage on the road to its attainment.

The word "grace" is one of those terms which are used to imply the highest kind of compliment; and yet of the actual meaning of which it will be hard to find a good definition. If pressed, a person who used the word might say that it implied a certain vague and indefinable charm. If that be really the case, it would be in vain that the architect or the painter should seek to produce graceful works. He cannot strive, or at least he cannot intelligently and practically strive, after the undefined. Unless he know what be the nature of the charm in which he seeks to clothe his works, how is he to hope to attain it?

The artist may, indeed, proceed a step in the blindfold pursuit. He may say that the female figures of such a painter—and to none will the remark more fitly apply than to Correggio—or the proportion and outline of such and such an example of classic architecture, are renowned and unrivalled for their grace. By imitating them, he may argue, he shall imitate, and thus acquire, the graceful. But the answer is, that such an imitation, if successful, will be mere mannerism. It will differ from the manner of the artist who is copied, just as photography differs from art. Correggio, in regarding nature, has certainly done so from a rare and enviable stand-point; and has thus known how to represent her in some of those phases which are divine. To any person of taste, whether educated or only native, one of the exquisite groups of Correggio will furnish an object that he never tires to contemplate; and which, even when only presented to the eye in the black-and-white translation of the engraver, may be one of the most cherished ornaments of an elegant apartment. But to the artist, the contemplation of such an object should be more than a source of pleasure. It should be a means of instruction. If he so imbue his memory with every detail, of outline and of chiaroscuro, in which the genius of this great master expresses the poetry of his imagination, he may produce something Correggiesque. But in so doing he will but take a low and unremembered place in the temple of art. The true lesson which he should draw from these glories of Italian magic, is to look, under the teaching of Correggio, at nature herself, and at the beautiful, as he saw it. And if, in regarding one object of purity and beauty, the student has come to see through the paint and beyond the canvas,—to look with the gaze of kindred genius, until the very idea that was present to the painter rises distinct to his own mental vision,—then will come not imitation but resemblance; not a faint and mannered reflection of the technical expedients employed by Correggio, but a similarity of conception and of rendering, that would raise the possessor to a niche of his own in the temple of fame.

In the same way we may measure, with minute accuracy, every detail of an ancient temple. We may copy every inflection of the mouldings, we may reduce to algebraic expression the exquisite proportions that are found to underlie the design. In the magnitude, permanence, and immobility of building, indeed, we have far more scope for positive imitation than in the case of painting. Given the sun, and the sky, and the clouds; given the clear air of Greece or of Italy, the pure azure of the heavens, the deeper turquoise of the Tuscan or Ionian Sea, the glitter of the marbles of Pentelicus or of Paros; we are not about to deny that even a Chinese artist, working with that absolute fidelity which results from infinite patience, might so reproduce the Parthenon, that the living spirit of the architect might yet seem to rejoice in his work. We do not say that this would be so. We can cite no example of such an *anastasis*. But we are not prepared to deny that it is possible.

But whether it be within the limits of possibility that a mechanical copy of the Parthenon, erected on the site of the Parthenon, might be a faithful representation of the original wonder of art, or not, one thing, we think, will be admitted by all. If the circumstances were at all varied,—if change of locality or of local incident should call for some modification of the original design, the artificial copyist would be at once thrown out. Either he would make no change, and thus the incongruity would be manifest to the competent critic; or he would make such change as best he could, and then the incongruity would be evident to the merest tyro. Indeed, it may well be the case that it is to the notion that copying dimensions and imitating construction is the same thing as reproducing architectural works, that we owe many of the hideous caricatures of earlier buildings, whether of the Southern trabeate architecture, or of the native classical architecture of our own snow-besprinkled climates, which are so often a grief and a shame to the true architect.

If, then, we seek to rival or to follow the graces of any charming work, or of any great artist, let it be Ictinus, or Praxiteles, or Correggio, certainly one of the preliminaries to the effort must be the attempt to understand what it is that we desire to seize. What, then, we have to ask, is that description or element of beauty that we express by the word "grace"?

In the English language we find the word employed in connexion, if not interchangeably, with the word "elegance." The graceful and the elegant are spoken of as if synonymous. But if we go to the root of this relationship, and inquire what elegance is, or at least what is the natural, etymological meaning of the word, we shall find that it only bears a tribute to the rarity of that charm which is called grace. For the elegant means, properly, the select. Such is the primary sense of the word. Such is the sense in which it is used by Cicero. The elegant is that which is taken out,—picked from the mass, selected from the herd,—so picked as being most rare, most precious; and, in this primary and proper sense, the graceful is, unfortunately, not different from the elegant. We may have heard a laugh raised at the very frequent use, in that rich brogue which is the attribute of some of the sweetest and most melodious voices in the world, of the adjective "illigant." But the question may well be put whether both the Irish usage, and even the Irish pronunciation, of the word are not more classic than our own.

When we seek, however, the very cradle both of the word, and of the embodiment of the idea,—grace,—we shall find no room to hesitate as to the meaning. To us, indeed, the word has only come indirectly. It is one of the relics of the Roman occupation of our island for 500 years. And in this transfer to our shores, there is no doubt that much of the original perfume of the Grecian ΧΑΡΙΣ has evaporated. The Roman GRATIA has something that is more mature, dignified, reserved. The impulsive infantile beauty of the Greek grace has changed into the draped dignity of the Roman vestal.

We have no native word for grace. Our Teutonic ancestors seem to have laboured under the same difficulty. They, too, have borrowed from the yielding, supple, gracious Italian speech. *Anmuth* seems to have a Semitic affinity. *Reiz* originates in an idea the very opposite of that which we seek. The Graces, pure and simple, are the daughters of Greece. Their cradle has been lulled by the murmurs of Southern seas. Like all the goddesses and heroines of old, they betray their nature by their names. Homer knew only two. If either of them was unborn in his time, it must have been the most winning of the three. THALIA took her name from the word that means feminine, if, indeed, it be not from the shoot of the olive. If we adopt the former signification, we need go no further. We arrive, in the word, at grace absolute. If we take the vegetable analogy, we have the idea of tender, budding youth, of full vivacity or energy of life; bud rather than blossom; hope rather than performance. At a yet more remote period of ethnographical life and of language, the two ideas, and the two words, may have sprung from a common origin.

AGLAIA, on the other hand, comes from a word which is best explained by its use, in the verse of Pindar, as an adjective applied to water,—pure, clear, glittering. The glow of health, on the skin; the glitter of happiness in the eyes; the pure, happy candour of youth; the blush called up by every new emotion; such is this second grace.

The third name is of another order. We come to a later born, though not less welcome maiden. EUPHROSYNE is the outspoken expression of content—cheerfulness.

We have not turned to pages so dear to memory merely for idle gratification. We want to know what grace is. We think we are on the way to find out. We must distinguish between outline and movement, between form and expression. It is in the second order of these ideas that we shall first find what we seek. Thence we may trace back the expression of the sentiment in its sterner or more conventional form.

We think that there will be little hesitation in admitting that the true idea of the gracious involves, at all events, a gentle sympathy; an accord of temper and of tone; a rendering of favour to the supplicant, and a return of thanks to the giver. In both Latin and Italian the word *Gratia* has this double significance. It expresses the Divine gifts. It expresses the best return that man can pay. It is first assent to prayer; and it is then the returning incense of gratitude.

In the natural language of physiognomy this sentiment, or state of feeling, is expressed by a gentle smile. This truth is not only instinctively known—to the child, to the lover, to the poet,—but it has been formed into a sort of canon by the painter. The Graces are dressed in smiles. This chief charm of human expression has, like all excellences, its counter-part. Homage is paid to the merit of the true coin by the fabrication of the false. Thus the artificial, or stereotyped smile, is, when detected, one of the most odious of human expressions. It is worn at courts, like a uniform, as has long since been pointed out by the satirist; and it is a uniform thrown aside with haste and disgust the moment that its service can be dispensed with.

But the true smile, which the poet, or the painter, or the lover (who is more earnest than either), well knows from the counterfeit, has in it something of the breaking down of a gentle barrier. It is that mobile play of the features that unconsciously, or irresistibly, displaces a sweet and modest gravity. It may be as momentary as one of those far-off flashes of summer lightning, half seen on the distant horizon, as to which we are in doubt whether we really saw the gleam or no. It may more gradually and more permanently shed over features, perhaps of very homely mould, a radiance that partakes of the divine. But be it what it may, so that it be pure and true, it is the most faithful reflexion of the light of heaven that is cast on the human face.

We may refer to the *Vierge au Panier* of Correggio as one of the most exquisite representations of this tender grace that is known to art. With this may be contrasted the ever-present grin which Greuze has made to do duty on almost every face. If the budding pout of the sweet girlish face on *La Cruche cassée* be compared with the ordinary expression to be found on other faces limned by this painter, it will be readily seen how much of artistic merit has been stunted and wasted in the attempt to create perpetual smiles. The contrast is like that between the tranquil happiness of the young mother, alone with her first treasure, and the ordered smile, illuminated by the foot-lights of the stage.

If we have been correct in this appreciation of that which forms the most winning charm, the truest grace, of human expression, we have gained a great step in the inquiry as to what constitutes the graceful in art. The idea now before us is that of a yielding to gentle pressure. If this be the truth with regard to what we may call the dynamics of grace, it is clear what must be its statical expression. We arrive at the result that the graceful, in symmetry, is, to a certain extent, synonymous with the slender. Of course in this, as in any other direction, exaggeration is possible, and failure is, in such cases, certain. But within the limits of true symmetry, whether we regard a human

figure, or a Grecian column or temple, it will be to the more slender, in relation to the height, other things being equal, that we attribute the character of the more graceful.

The architect will at once respond to this remark. He will remember that, from early days in his art, the Doric, the Ionic, and the Corinthian orders have been compared to the man, the matron, and the maiden. Is it not the case that there is a real truth underlying the comparison? Does not the history of architecture show that the advance in classical art has been almost continuous in the direction of increased loftiness, as measured by the modulus; that is to say, of increasing slenderness? What do we find to be the case in our simplest architectural text-books? We find the earliest proportions of the column in Egypt to give only thrice the diameter for the height. At Karnac we have this proportion, and we have also the proportion of a little more than four modules—say four and a fifth—to one. At Denderah we find four to one; at Beni Hassan, five to one; at Mahariga, six to one. We suppose that there is no one who will deny that, with this gradual variation of proportion, we find the idea of massive and mighty strength gradually yielding to the idea of structural grace.

A similar progress is to be detected in Greece. The earlier type of Grecian Doric, which is found at Selinus, gives us an example of columns of 4½ diameters in height. At the Parthenon, the proportion is five to one; at the Theseum, five and a quarter to one. In the Tuscan order, we have the column, including base and capital, of 7½ the height of the diameter. In Ionic buildings the 8½ to 1 of Priene, and 8½ to 1 of Delos, rise to 9½, and 10½ to 1, in the Erectheum. Thus we find the same tendency evinced both in the succession of style to style and in the internal development of each style, viewed apart. The development, in either case, follows the same law. Grace is gained, not, perhaps, at the expense of real stability, but at the expense of that massive proportion which, in the earlier period of art, was taken to be the proper expression of stability.

Sculpture followed the like law of progress. In our most archaic examples of Greek sculpture, and even in examples to be found in the British Museum, the figure is so squat that the head and neck make up one-fourth part of the total height. Amongst the earliest Egyptian works we find the head alone occupying three-sixteenths; while the neck, which in the other figure was almost as large in girth as the head, is undiscernible. In the first Egyptian canon, as laid down for the regulation of the koilanaglyphs, or coloured reliefs, with which the tombs of lower Egypt are adorned, the head occupies three out of nineteen divisions, or nearly one-sixth part of the height. The date of some of these conventionalised figures reaches, according to the reliable determination of Brugsch, to a period 3,400 years earlier than the Christian era. This ancient canon remained in force for nearly 3,000 years. It is not till the time of the twentieth dynasty, some 600 B.C., that the head is reduced to something more like the actual proportion of life. This reduction, however, was accompanied by an extraordinary development in the height of the head-dress, a representation which probably was only the reflection of the actual attire of the period, and is one of the most ancient examples of the power of what we now call fashion.

Lastly, a like progress is found in the development of the human form. At birth the head occupies one-fourth part of the total height of the figure. At maturity, in the most symmetric figures of ancient sculpture, it occupies one-eighth. Thus it seems that the sister arts,—of architecture and of sculpture,—have, in their growth and development, as represented by their most famous relics, followed precisely the same course, and almost exactly the same proportionate method of development, as that by which the human form itself passes from infancy to maturity.

We can only call to mind a single argument which may be drawn, from this very analogy, against the general view that slenderness of symmetry is a main element in architectural or sculptural grace; that is to say, in grace of construction, as distinguished from grace of expression. That argument may be thus conceived. All persons will admit that there is much grace connected with the forms, or at all events with the movements, of children. But their structural symmetry is special. It is squat and dumpy. At a very early age, when the little creatures can but just walk, a healthy child is but half as slender, measured by its own height, as a well-formed man. How is it, if grace be denoted by slenderness, that chubby children are graceful? Are not the lovely groups of Il Fiamingo so many carven protests against our former proposition?

We think not. It is possible that there may lie, beneath the surface, a true cause for the apparent anomaly. That cause we take to be the weakness of the child. The infant form is not made to struggle either with human competitors, or with the ruder forces of nature. It is the subject of the most careful maternal tendance. The first struggle of those little limbs is with their own gravity. The first great effort is to walk. In the half-learned exercise of the new powers, the period that most charms the observer is that when the pace is just passing from a totter into a trot. But if it be the case that the fattest and chubbiest children are often the most graceful, there is still the question of the *post* and the *propter*. Fatness in a child under seven years of age is usually a sign of health. The healthiest child is, natually, the most charming. But if, health being equal, a little girl of hereditary slightness and delicacy of girth be compared to her plumper playmates, she will be certainly esteemed more graceful, and the charm is even heightened by the contrast. A child crawling on all fours has many charms, no doubt, especially to loving eyes. But it cannot be cited as a graceful object. Neither is the term very applicable, so long as motion is accompanied with evident effort and difficulty. It is when the power first overcomes the resistance, that the most interest is excited by the movement, regarded as a graceful movement. In violence, grace is absent; whether in the case of painful struggle against overpowering force, or in that of energetic force scathing and destroying resistance. But the movement that is perfectly proportioned to its aim, whether it be the bound of a deer, the poise of a bird, or the playful amble of a girl, is graceful. And it is so, for the same reason, or, at all events, in accordance with the same definition, that we before gave of the graceful. We hold, then, that it is perfectly consistent with the view that structural grace is generally intimately connected with slenderness of symmetry, to admit that a well-developed child, though anything but slender, may nevertheless be perfectly graceful.

THE "LABOUR" PROBLEM: WORK AND PLAY.

IT has many a time and often seemed to us as a thing not a little strange that no philosophic thinker, in a combined politico-economic and artistic sense, has gone to work, and tried at least to solve the problem of labour, *i.e.*, manual labour. A somewhat difficult word to define is the word "labour." Johnson calls it—the act of doing what requires a painful exertion of strength: pains, toil; and a labourer is one who is employed in coarse and toilsome work. The evident idea to be conveyed by the word is that of continuous manual exertion, with but little or no mental activity either needed or in exercise. In its widest sense the word, of course, includes intellectual and manual work characterised by difficulty or continuousness. But the first-named idea of the word is that with which we propose to deal at present, and to say a little; for it has lately acquired a new interest from the efforts that have been made at Oxford to interest even "Graduates" of that famous University in mere manual labour, and to induce them in their own proper persons to go to work and to "mend a road." This is a very curious fact indeed, and may well cause wonder. Wonder at the infinite number of phases of man's activity; and wonder, too, perhaps, at the strange way in which it has been sought to employ the leisure time of those whose lives are dedicated to mental pursuits and intellectual training, but whose bodily and manual powers and energies unceasingly demand exercise, but which exercise they seem able to obtain only through amusement or play of some kind or other, no matter how hard or laborious or even long-sustained and exhausting.

This subject of manual labour is indeed a far more curious and all-important one at the present time than very many think for. We allude here especially to it as affecting those who are supposed to be more or less above the necessity of bodily labour, or even simple exertion, as the serious business of their lives; but who only take to it occasionally as a pastime, and in a form which suits their fancy. It is but comparatively a very few indeed who are able to employ themselves in intellectual occupations only; for bodily and mentally the many are unfit for it, and incapable of it. Some earnest and enthusiastic students of "man and his ways" there are, who seem so wholly taken up with "intellectualities" that they seem to almost forget physical requirements; but these are only very few in number. The vast majority are found, however keen-minded they may be, to need bodily excitement and exercise, not only for health's sake, but for the mere pleasure of moving about and doing something. To this class belong certainly the vast majority of even what are termed highly-educated Englishmen; a bodily, physical outlet is absolutely necessary for their stout and healthy energies and high spirits. But then the question comes, *how* is this to be accomplished? What kind of bodily activity is to be sought out and gone through? The answer is, as we all know, sometimes boating, sometimes cricket, football, gymnastics, under which heading lies a vast variety of wonderful things; running, as in Greek days, included. It must be borne in mind here that these things, though not universally approved, are not entirely out of date, for they are even fashionable, and certainly approved by the scholastic powers. So far, so good. It remains only to discover how and in what best way to do such bodily work; and may be to contrast it with bodily work that yields a profit.

Indeed, and in fact, it will be found that mere bodily exertion may be conveniently, for our present purpose, divided into two kinds, viz., the mere labour that may be gone through by all without thought; but still with a definite useful result,—as the Oxford road-mending scheme; and that other labour, or bodily exertion, which is called forth and exercised in the playing at various "games," pleasurable in themselves, but which yield no material profitable result. But to balance this deficiency, they are intensely pleasurable, and at the same time demand intellectual or mental effort of some kind or other, — as polo, cricket, quoits, boating, gymnastics, and not a few others. It is wonderful to think of, how much is involved in this last kind of bodily exertion. Think for a moment of what the Greek did with his mere "games." Nothing seems to have been lost sight of, or missed. Everything that could in the way of *culture* be got out of a game was got, and no pains would seem to have been spared to make of these games really artistic performances. All and everything went to aid and help this. The very clothing of the antique Greek seemed expressly fitted for the games, and for the purpose of adding to the freedom and grace of the bodily movements. It was fine art in action, in visible action, and the Greek public saw the "antique," not only in marble merely, but in actual flesh and blood, alive and moving. The old Greek, therefore, made use of mere bodily unproductive labour, in its politico-economical sense, as a real means of intellectual culture of the very highest order. He not only saw into the physical nature of man, and acknowledged his bodily need of exercising his strong limbs; but he compelled this bodily exercise to yield a graceful product and a mental delight. Why should this fail *us* nowadays? We do not need to follow the old Greek as in a repeating mirror, but cannot we do as he did *in our own way*?

It is not a little curious to compare the doings of the men of past times with our own doings now-a-days, and to mark the difference. The Greek had his leisure hours, as we have. Of that we are quite sure; and he had to do a something to fill up that leisure somehow or other. He went to work in his antique youth and invented his great Olympian Games, and in the first of the Olympiads must he have opened a living volume of fine art, better, infinitely, than any book, however learned, can well be. This is what the antique Greek did, and Mr. Gladstone notes this power of the Greek in Homer's day as a world-wide good, and example to all time, and, as even "providential" in its *teaching* power. But what do we do with our physical and educated human powers when at a new turning-point, as at Oxford? Why we run away from "games" and turn to primitive and simply useful human labour, and that of the humblest kind, and wherein, certainly, art has no part.

It is worth while to pause a moment to glance at the ways of humanity in places remote from ever-present and too familiar surroundings. It has to do, too, with this plan of utilising the physical powers of educated men. It is among the very greatest and most interesting problems of human nature, and involving in itself the very essence of artistic action. Listen for a moment to what a great authority in railway constructional matters has to say from personal observation on the condition of things in that artistic land, Italy. Hereabouts,—close to Pisa,—"signs of railway construction are apparent; but such very original methods of procedure would excite the derision of the most saturnine English contractor. The digging was and is effected by a sort of adze, and the loosened material lifted deliberately by a long shanked scoop, to be carried away in small baskets on the heads of women and girls,—bands of barefooted female navvies,—each in turn casting down her modicum of earth to swell the slowly-accumulating heaps," all paid for at the rate of a few pence a day. What is Italy to do in its efforts to ape the doings of more advanced communities? The writer continues,—"One would not be surprised to see processes so barbarous carried on in Turkey and Japan; but in Italy, with its proficiency in high art, it is certainly unexpected and startling. It shows that a country may be far advanced in picture-making, sculpture, and other objects of taste, and yet remain in practical ignorance of utensils and economic methods of industry familiar to the humblest Englishman." Of this there can be no doubt; but what is the remedy, may we ask in passing? Why, the tools to him who can use them, whatever they may be. The spade for the Briton, for he can use it; the brush for the Italian, for he can use that. Each can work, and work well, in his *own* way.

But let us not be too hard on the too backward Italian, for we may get a lesson even from him in the way of digging and delving. Road-making and road-mending are ingenious things, and might perhaps test those who, as above, construct railways in Italy. It does seem a strange thing to organise, for the first time, a strong body of educated "graduates" to do that which even the "women and girls" of Italy could do, not only as well, but may be better and quicker. Could not,—for that is the question,—could not the physical energies in the useful, and profitable, and economical way be more usefully and better directed? To wit, the laying the rails of a railway takes the wits and hands of a "tradesman," as the term is, to do it well, though the work may appear to be simply mechanical. And to build a rubble-wall with taste, so as to look like artistic work, is a thing to be proud of, as may be evidenced to all who will compare the rubble of some castle or cathedral with our modern attempts at the same work. We confidently recommend this last apparently simple muscular labour-problem to the attention of the Oxford graduates when the road is finished, and when work may be slack. It is a wonder, indeed, that a something long ere this has not been done towards putting some actual work into the hands of men higher in mental capacity and tone than our working men generally are. It is a difficult thing to define in words, but patent enough in fact, for "caste" there is, say the philosophers what they will about it. Its difference gets apparent through the material it sometimes works upon. It is really impossible to imagine what the future of art may produce when the *executive* power employed in its production comes to be better seen through it.

We may here see that of the two methods of proceeding in the effort to employ the bodily powers of the educated it may be somewhat difficult to determine which to take, other circumstances being equal. The old Greek must have surely done both. It seems impossible that such a building as the Parthenon, with its multitude of accuracies and refinements, could have been built up by other than highly trained and educated workmen; not men able simply to build, without thought or taste, but of those who though workmen, were able to see into the *purpose* of the refinements they executed. This is a great question certainly, but perhaps for the future. Profitable and art-producing at the same time, and pointing to very many things,—human grace of movement, a component part, and fitness in many things now thought to be trifles of but little or no moment. The other mode of employing, or rather of exercising, the bodily powers of ever-active youth and manhood, though not profitable, may or may not be the best; but it is, and must be, good and fit. "Amusement," however the word be defined, is a human necessity, and *fits for work*, and the problem is not to do away with it, even to mend a by-road in a neglected British village, but to make it more artistic, and refined, and more pleasurable. To call forth by it the latent physical powers and beauties and vast capacities of the human frame, to improve the "figure," and to make the very mind itself more and more active and healthy through the health of the body. To make the boy better than his father, and to make the new and coming world better than the old and past. There is vast latent artistic power in "games," yet unthought of.

THE MAKE OF A BILLIARD-TABLE.

THE redoubtable Captain Crawley, in his excellent "Book of Billiards" (which, by the way, is appropriately dedicated to the Prince of Wales), tells us that "billiards has grown into a science since White and Kentfield first illustrated its peculiarities; and so rapidly has the game improved of late years, that all rules and theories respecting it in former treatises are already obsolete." Few people who know anything of the subject will be prepared to dispute this. The game of billiards was never so popular nor so scientifically studied as it is at this moment. We may add, that it never possessed so respectable a character! It is not so very long ago since it was held to be an amusement of a doubtful if not a disreputable kind, inseparably associated with the sports of bettingmen and tavern-frequenters, Oxford undergraduates, and Regent-street sharpers. But this reproach, which we must confess was not altogether undeserved, has passed away; and now-a-days there is scarcely a local club, a mechanics' institute, or a town mansion of the least importance without its indispensable billiard-table. In a modern country-house, the billiard-room has become quite as great a necessity as the conservatory; and it is impossible to overlook the fact that the gentle sex must now be numbered amongst its distinguished and assiduous votaries.

The cause of this is not very far to seek. The game of billiards stands in the very front rank of what our gallant authority describes as "indoor athletics." Requiring far less mental exertion than chess or whist, it has the advantages of being a more social game than either of them—since it may be played by two persons or by a dozen. And, what is of greater consequence, while it provides an exhilarating amusement for the mind, it affords at the same time most ample exercise for the body. We will give a single illustration: an active and intelligent player walks about a couple of miles round the table in the course of an hour; during which time he has been constantly solving some of the most intricate problems connected with the parallelogram of forces.

Our object in this article, however, is not so much to dwell on the acknowledged claims of billiards to be ranked as an intellectual amusement, combined with a physical recreation, as to give some account of the nature and construction of the billiard-table itself. We take it for granted that our readers all know what it is. If not, we can only define it in a rough and round sort of way as a "board of green cloth" (!) with the addition of the necessary complement of pockets and balls. It differs literally in one respect, and one alone, from certain green cloth boards at Westminster, of which we wot—inasmuch as the balls which are thrust into the billiard-table pockets are made of ivory; while those which fall into the parliamentary pockets are made of silver and gold. The conceit is a poor one, no doubt, but it is so extremely obvious that we could not resist it; indeed, it would be easy to carry the analogy much further if we had to deal with the game as compared with certain of our Parliamentary proceedings. But this might turn out a losing hazard in our case; therefore let us abandon all metaphor, and proceed.

What is a billiard-table? How is it made? Of what materials is it composed? What are its separate pieces? How are these joined together? How is it constructed, in short; and fitted up and kept in order? These are the questions we purpose trying to answer; and they are not, we may hint, such simple questions as might at first glance be supposed. Few, we presume, of the multitudes of ladies and gentlemen who give their days and nights to the study of the surface of the table bestow a single thought on the anatomy, so to speak, of its framework; and, as far as we are aware, there exists no sound and exhaustive monograph on the subject. Without any pretension to fill up the hiatus, we shall do our best to shed some light on it; and it is proper to mention that the whole of the technical information which follows was derived from a series of visits we were kindly permitted to pay to the extensive manufactory of Messrs. Morison & Co., of Edinburgh,—a firm, we believe, which stands second to none in the kingdom for solidity and accuracy of construction, and beauty of finish. Their reputation as cabinet-makers and upholsterers has in this instance stood in good stead; for it must always be remembered that a billiard-table is just an ingenious combination of cabinet and upholstery work.

The modern full-sized first-class billiard-table consists of a rectangular bed of slate, 12 ft. in length by 6 ft. in breadth, resting on a massive framework supported by eight ponderous legs, surrounded with a ledge of elastic, or rather *resilient*, india-rubber cushions, covered with green cloth, and supplied with six netted pockets, one at each corner, and one in the middle of each side-cushion. The proper height of a full-sized table is 3 ft. from the floor to the top of the cushions.

The object and intention of all the various games played on this billiard-table is, in the first place, to force one or more solid ivory balls into one or other of the six pockets, by means of a third ball (a hazard), struck by that well-known tapered rod which we call a cue; or, secondly, to force one ball in such a manner as to make it strike other two balls (a cannon); or, thirdly, to make those two strokes simultaneously (a hazard and cannon). The games most commonly played in this country are billiards, pool, and pyramid. Foreign games have often been introduced, particularly those which are known as the Russian and American games. But they have never very long stood their ground against the game of billiards properly so called, which is played with two white balls and a red. This well-known modern game is, in fact, a combination of the ancient hazard game with that of the Continental cannon, and is played as the game of Englishmen in every quarter of the globe.

These definitions will probably serve our purpose for the present, since we must on no account be guilty of the presumption of trying to unfold the intricacies of the game. Theoretically it will be perceived that this rectangular table contains two equal squares inside the cushions; but in practice this exact mathematical ratio is departed from. The precise measurement of the bed in all good tables is 12 ft. by 6 ft. 1½ in. We tried to get some explanation of this seeming geometrical irregularity; but we could find none excepting that which the celebrated Stradivarius assigned for the shape of his priceless violins,—viz., it was the result of the longest experience of the best players. In fact, it was at one time the fashion to make billiard-tables square, round, oval, octagonal, and of various other shapes; and on the Continent these variations of form are still by no means uncommon. The ordinary billiard-table of the French provinces is an oblong of 8 ft. by 4 ft. without pockets, and hence, of course, only fitted for the cannon game.

The timber most suitable for the framework of the best tables is either mahogany or walnut. Fine oak may also be employed with advantage; but in either case it is of the last degree of importance that the planks should be properly seasoned. It is, of course, possible to construct a table with good Baltic timber, or even with Norwegian pine; and in point of fact many tables in Copenhagen and Christiana, and other cities in the north of Europe are so constructed. But the tendency of inferior timber to warp is fatal to the principle of absolute rigidity essential to a good table; and we believe we are correct in stating that the best material for the framework is good mahogany.

Supposing this timber properly seasoned, and cut to the requisite scantlings, the first step in the order of building up is to produce the eight ponderous legs, which are turned 7 in. or 8 in. in diameter, out of solid mahogany. It was the fashion some years ago, in the dark ages of billiard-table manufacture, to model the feet of these legs upon the orthodox pattern of a dining-room chair; that is to say, of tapering downwards through several members to the lowest extremity where the smallest diameter rested on the floor. But we have now changed all that. The foot of a modern billiard-table's leg bears the same

resemblance to the tapered foot of a table or chair that the foot of an Indian elephant does to that of an Arabian horse. The reason for this change of form in the design,—which some may think is at the expense of elegance,—is clear enough. The superincumbent weight, as we shall presently ascertain, demands the utmost solidity of foundation. Those legs are turned, carved, and fluted to any desired pattern; and it is hardly necessary to say that in this particular there is a considerable outlet for taste and expense.

Having now got our legs reduced to order, the next important step in the frame-work is to produce the side-rails and bearers which unite them. These consist of four massive slabs of mahogany, about 10 in. in breadth by 3 in. thick, usually panelled on their exterior surface and often elaborately carved. After being properly prepared they are strongly mortised and bolted into the square plinth of the legs, exactly after the manner (only with double the strength) in which a heavy four-post bed is bolted together. There is this further general resemblance in construction to the four-posted bed that the side-rails support a set of strong inside rails, nine in number, 6 in. by 1¼ in. in their section; only the great difference is, they are not laid transversely. In order to gain strength and stability these inside rails are crossed at right angles and at proper intervals, besides being strongly mortised into the side rails and to each other. When all these outside and inside rails are securely bolted to the massive legs the lower framework of the table is completed.

We now arrive at the most important of all the modern improvements on the billiard-table, viz., the slate bed. This bed is composed of five thick slabs of the finest slate which can be obtained from the quarries of Bangor or Penrhyn, in Wales. These slabs are first of all ground to a perfectly level surface by the best means which our mechanical ingenuity can devise, —that is, by the attrition of fine silicious sand and water used with a huge flat iron or "float"; and, secondly, they are jointed with that minute accuracy which is said to have characterised the marble masonry of the Parthenon, the joints of which refused to admit a slender thread of gold. When we state that this slate bed weighs something approaching to 15 cwt. our readers will see that it is a very different affair from a hair mattress; and will recognise the necessity of the strong framework upon which it rests. It should be mentioned that many London firms employ slates of only 1 in. or 1¼ in. in thickness; but those we saw in Edinburgh were 2 in. thick. This increase has been found in practice to give the surface greater solidity and smoothness, together with greater power of resistance to atmospherical changes. Slates have been introduced into the beds of billiard-tables only within the last twenty-five years, and the improvement has been great. Previously to that period, timber, stone, and even iron, were all in use, but with very inferior results. After the invention of the planing-machine, it was thought that cast iron would supersede all other materials; but, although perfectly level when fitted up, the true plane of the table soon gave way to changes of temperature, and the hollow reverberation created during the game resembled those sounds we are all familiar with in a railway tunnel. On the whole, there has been no material applied to the beds of billiard-tables, nor probably ever will be, that can equal in the essential requirements those heavy slabs of Welsh slate.

The cold, hard, and obdurate slaty bed has now to be provided with a smooth and warm blanket,—in other words, it has to be covered with green cloth, the very best West of England, varying in price from 18s. to 34s. per yard. This cloth is known in the trade as "broad billiard green," and is always specially manufactured for the purpose. West of England is preferred by all good makers to Yorkshire wool, not only on account of its finer quality, but also of the superiority of colour and finish. Why the cloth should be green invariably, and usually a dark shade of that most positive colour, is a question we cannot answer, except on the old hypothesis that it is most agreeable to the eye. Red tape may do very well in good hands; but, fancy the effect of a scarlet billiard-cloth! It was for long a mystery to us the method by which this cloth was so beautifully stretched and bound over the slate; but the process is simple enough. Fillets of wood, about 2 in. broad, are secured through countersunk holes to the under edges of the slate, and to these wooden fillets the cloth is stretched and nailed.

We now arrive at the "crowning of the edifice,"—namely, the cushion rails and the cushions. These rails are six in number; that as well as their length being necessarily determined by the six pockets. They are constructed of the same timber with the same degree of finishing; and their primary purpose is to serve as a basis for the elastic cushions and next as a convenient support to the pendent pockets. They are screwed to the edge of the slate with several bolts to each piece; in fact, the slate is for the purpose of receiving the different bolts and screws we have mentioned, drilled in thirty-two places vertically and laterally. That beautiful close and level joint made at the junction of the cushion rail with the cushion cloth is effected by a "feather" (or wedge), filling the groove the whole length of the joint, from which the cloth is stretched over the cushion, and so tacked to the deal below. The cushions after the slate bed are the most important, and we must add, the most tantalising members of the whole structure. All good billiard playing is thrown away upon bad and non-elastic cushions. At one time the cushions were stuffed with list and layers of cloth. We have even heard of hair being employed. But the introduction of india-rubber, which occurred almost contemporaneously with the introduction of slate, created an entire revolution in the manufacture. The newest form of cushion has, attached to the ordinary basis of deal, about eight plies of strip rubber, varying from $\frac{1}{16}$ to $\frac{1}{8}$ of an inch in thickness, so convolved as to make the projection inside the table from 1¼ in. to 1½ in. altogether. From good India-rubber cushions a ball struck moderately hard will traverse the table three or four times from end to end; indeed, on some very fast tables as many as eight passages may be made. But the fastest tables, we understand, are not always the best.

It is of the greatest importance to regulate the temperature of the room, as affecting the elasticity of the cushions; and for the same reason it is the custom, particularly in clubs and public rooms, where there are regular attendants, to run a hot-water pan round the cushions every morning as soon as the table is brushed. But the clubs, it must be told, take a great deal more pains than private people to keep their cushions in order; and, moreover, the tables there are in more or less constant exercise. In a private house, on the other hand, a table may stand cold and neglected for several months at a time. In such a case, the native rubber cushions turn as hard as stone, and it requires a good deal of time and attention to restore them to their proper tone. To meet this frequent objection, a new and improved form of cushion, made from vulcanised indiarubber, — that extraordinary substance in which all the properties of the original gum are metamorphosed by a chemical combination with sulphur,—is employed, which is not affected by ordinary changes of temperature, and accordingly does not turn hard when the room is cold, or the table not in use. It may be added that these vulcanised cushions are built up from strips or sheets in the same manner as the others, which are made from native rubber. These cushions are screwed on to the inside surface of the cushion-rails, through their timber bases, by means of common screw nails; the cushion-rails are themselves screwed on to the ledge of the slate by means of bolts; the pendent pockets are attached to the pocket-rails by means of stout semicircular solid brass rims; and the table, as far as its construction goes, is now completed.

There now remain the processes of finishing and fitting up. All first-class tables are veneered with choice Spanish mahogany on the flat surfaces; the heads of the bolts are concealed in the cushion-rails by means of knobs, and on the square of the legs by means of raised panels or templates. The whole timber surface, including the carving, is, of course, magnificently polished; and the cloth and cushions are elaborately ironed. It is necessary to add that the table is accurately levelled and properly tested before it leaves the wareroom. We have only to add here that the cost of such tables ranges from 80*l.* to 150*l.*, though a very good table may be had for much less than the lowest of these sums. We had something to say about the balls and the cues; but our space is exhausted. The regular billiard-ball is made from the finest African ivory, perfectly spherical, $2\frac{1}{16}$ in. in diameter. The red hazard-balls are dyed with vermilion, and the pool and pyramid balls with other pigments according to their tint. The table is nothing without the balls; and the balls are nothing without the cue. That well-known long, slender, tapering instrument is made from many varieties of timber, including lance-wood, boxwood, Brazil-wood, and other curious woods; but nothing is so serviceable, and, actually, so successful, as thoroughly-seasoned ash. We cannot, however, enter on this subject at present; nor can we dwell on the other accessories of the billiard-room—the long cues, butts, rests, maces, and more particularly the marking-board, which, in its present improved condition, is a most ingenious invention. We shall devote a few words, in conclusion, to the process of fitting up the billiard-table in the billiard-room.

When a billiard-table has to be fitted up,—say in a country mansion not originally designed with a billiard-room,—the makers usually advise the proprietor, if the room be on the ground floor, to support it with a solid block of masonry corresponding to the superficial area of the table. In upper rooms they always endeavour to lift the flooring and strengthen the joists with cross-struts; for it must be remembered that the entire weight of a first-class table is from 20 cwt. to 25 cwt. The best covering for the floor is a plain cork carpet; kamptulicon, and that class of fabrics do not answer the purpose so well. Sometimes a rich Brussels carpet is laid down, in which case an ornamental matting is made to surround the table on its four sides. After levelling the floor the first operation is to fit up the odd-looking lights, with their shades. The next is to fit up the framework; then to put on the slates; next to stretch the cloth; screw on the cushion-rails and pockets; and finally to brush and iron the surface and spot the table ready for play.

THE ITALIAN CINQUE-CENTO AND THE EARLY FRENCH RENAISSANCE.

ARCHITECTURAL ASSOCIATION.

AT the last ordinary general meeting of the session, held on Friday evening, the 26th June, Mr. F. C. Penrose read a paper, entitled "The Influence of the Italian Cinque-cento on the Early French Renaissance." In the course of his remarks he said that the Cinque-cento, or Renaissance, style or phase of architecture had, and deserved to have, great interest for them. It was perhaps the most plastic style on which they could base modern architecture. It had not the grandeur of the Egyptian nor of the Greek, nor had anything been achieved in this style which could compare in dignity with the earlier Gothic or the Romanesque,—in this term including the best specimens of the Norman; and he ventured to call the Romanesque even more solemn than the thirteenth-century Gothic. It must be granted, however, the Renaissance, properly so called, had been used,—that was, fundamentally,—in so few of the more important cathedrals and churches of Europe, that its capabilities had never been brought out; still, he thought, they were justified in thinking of it rather as suitable to civil, palatial, and domestic purposes than to ecclesiastical. In speaking thus of the Renaissance, he excluded St. Peter's at Rome, and other churches such as St. Paul's, built on the fully developed revived classical idea, from this category altogether. In this place, he neither affirmed nor denied that these might compare with those of any other style; but he was speaking of St. Eustache, Paris, and St. Pierre, Caen (*i.e.*, the choir); and in Italy, such design as the front of the Certosa of Pavia, which might indeed compare favourably with the later Gothic, but not in respect of dignity with the earlier. But leaving alone the question of the suitableness of the Renaissance architecture for ecclesiastical buildings, he ventured to offer it as an opinion, formed upon the study of many years, that for buildings not ecclesiastical the greatest success had been obtained in the Renaissance style. In Italy there was nothing to surpass the Venetian palaces built by Sansovino and San Michele; by San Michele at Verona, by Bramante and Baldessare Peruzzi at Rome, and by Galeazzo Alessi at Genoa. In Spain the finest results were all of this period. The finest he would quote was the Town-hall of Seville. In France the Palace of Chambord and the older part of the Louvre would alone suffice to give to this style the first rank in that country of palatial architecture. The arts which took so deep a root in Greece were exotic amongst the Romans; but they were fashionable, and patronised by the great Romans. There were, however, other races in Italy of Greek or Etruscan origin, with whom

they flourished naturally, and amongst their descendants they ultimately revived. Wherever classical antiquity had left important traces, the Mediæval architecture and sculpture were deeply influenced. For instance, in the South of France, especially in Provence, details of Romanesque work were to be met with which it required some discrimination to distinguish from classical work. Nor was this surprising. Even the northern architects thought that they were following out and reproducing the forms of classical architecture, and they owe much, if not most, of the originality shown in their works, to the difficulty of access to the ancient models. This separation of the Northern artists from the ancient models, however favourable it might have been to the development of a new style of architecture, was not advantageous to that of the sculpture of the period; and it was from Italy that the influence came which, although of a very limited period, brought up the Mediæval sculpture to a very high state of excellence. To the famous Niccolla da Pisa the credit must be assigned of this reform which, beginning with his works about 1225 at Pisa, extended gradually to Rheims, Westminster Abbey, and Lincoln. The impulse was, however, soon lost in Northern Europe, and the sculpture of France, England, and Germany degenerated much more than did the architecture; more at least than did the English Perpendicular. This Italian search after excellence in sculpture and painting was accompanied by an extraordinary desire to recover the lost or buried literary treasures of antiquity; and Dante, Petrarch, and Boccacio, were among the most influential and the most laborious in bringing the lost treasures of learning again to the knowledge of their countrymen, and through them gradually to the rest of Europe. Chaucer, born 1328, soon responded as an author; but England went on for about a century and a half before Chaucer began to write,—before the tide of the Mediæval arts of architecture, sculpture, or painting was run down to its lowest ebb, and returned with the flood tide of the Renaissance. Both in England and France this turn of the tide was nearly contemporary. The French, however, had still more reason than the English for hailing the new style. In the Perpendicular the English had achieved at least one building worthy of all time—the King's College Chapel, Cambridge; whilst in France there was nothing but the fritter and prettiness of the Flamboyant; and probably, in consequence the Renaissance took more decided and stronger root in France than in England.

After tracing in detail the general revival of classical architecture in Italy, which began in Florence with Brunelleschi in his first work of the Church of San Lorenzo, which would be about 1420, Mr. Penrose went on to say that it was then received in various parts of the North of Italy, then by Rome and Venetia, San Michele importing into the Veronese and Venetian examples much that he had gathered from his own studies of antiquity. Germany followed, and, through the influence of Henry VIII., it was received in England some years before it took any hold upon France; but it did not take root amongst the English as it did in France for some time. In France and Spain it was received about contemporaneously. One of the earliest and most characteristic of the Renaissance efforts in France connected with church architecture was the eastern portion of the church of St. Pierre, at Caen. The whole idea of the structure was Gothic; but the details were to a great extent classical. The chief difference between the first Italian and the first French examples had been, that the French only borrowed the detail whilst still employing the general form derived from the Gothic. England was brought into the growing fashion by Henry VIII. inviting Torregiano, a Florentine, to put into the new chapel at Westminster the monument to his father. Torregiano's hand was probably to be found in the fine Renaissance screen and stalls, scarcely inferior to any similar works added in the reign of Henry VIII. to King's College Chapel, Cambridge. The designs for the painted windows of the same chapel have been referred with some probability to Holbein, who was at that time established in England. There was a small but elegant and, for England, almost unique example of early Renaissance at Tiverton, Devonshire, in a chapel built by John Greenwaye, a merchant, dated 1515. The style of the work rather suggested that French hands were employed in its execution. Returning to the Renaissance. About the year 1530, Francis I., whose military excursions into Italy although unsuccessful had given him a strong feeling of admiration for the arts of that country, invited the artists Rosso and Primaticcio, and subsequently Serlio and Benvenuto Cellini, into France, which gave a new impulse to the style which was soon exhibited in the Hôtel de Ville in Paris; the *châteaux* of Fontainebleau, Chambord, and that named Madrid; and the Château Gaillon, both near Paris. That of Madrid was entirely destroyed, and of the Château Gaillon, only a screen which was built, forming one side of the court, remained, and was preserved in front of the Palais des Beaux Arts. This monarch also built other palaces, and the chief feature in them was their towering roofs, ornamented with tiers upon tiers of dormer windows and turret staircases of the most picturesque and fantastic character. There were still other beauties in the shape of doorways and window-dressings, ornamented with great delicacy to satisfy the eye on nearer approach. At this time, about 1540, France possessed two native artists of the very highest character—Bernard Palissy and Jean Goujon. Jean Goujon, if not himself known to be the architect of any buildings, was known to have added to them their greatest charm. His sculptures in the great court of the Louvre, and his "Fontaine des Innocens," which was recently removed and its character destroyed by the restoration, put Jean Goujon on the very highest pinnacle of merit as a Renaissance architect and sculptor. The noble painted windows of the chapel in the Château of Vincennes were executed from his cartoons. He was shot whilst working on a scaffold at the "Massacre of St. Bartholomew," in 1572. The Hôtel de Valois at Caen, though not large, was one of the most graceful buildings of the more picturesque class—such as Chambord and Blois,—with quaint dormer windows and the combination of sculpture figures of heathen and Jewish worthies with fine arabesques by the same hands, no doubt, who, a few years earlier, had finished the neighbouring church of St. Pierre, was extremely pleasing. For the great court of the Louvre, Francis I. invited designs from Serlio, who probably considerably influenced the design; it was purer than the other works mentioned, where the French character had more scope. Whatever Serlio might have done, however, the actual architect was Pierre Lescot. The architecture of this palace was of so high and pure an order, bringing the delicate Italian feeling into a more robust growth as suited to northern latitudes, that it was one to which their attention should be particularly turned, because there was considerable danger lest in using so malleable a style as the Renaissance they should be led to indulge in licence, as their school was very much too apt to do. They found abundance of freedom, but still wholesome restraint, in this great palace. He had here indicated an example which they should all follow, from the able pen of Sir Digby Wyatt, who had written of it:—"It remains for us only to invite the student to cultivate the beauties as sedulously as he could, and eschew the extravagancies of the Renaissance style. Where great liberty is afforded in art, no less than in poetry, great responsibility is incurred. In those styles in which the imagination of the designer can be checked only from within, he is especially bound to set a rein upon his fancy. Ornament let him have in abundance; but in its composition let him be modest and decorous, avoiding overfinery as he would nakedness. If he has no story to tell, let him be content with floriated forms and conventional elements in his enrichments, which please the eye without making any serious call upon the intellect; then, where he really wishes to arrest observation by the comparatively direct representation of material objects, he may be the more sure of attaining his purpose. In a style which, like the Renaissance, allows of, and indeed demands, association of the sister arts, let the artist never lose sight of the unities and specialities of each. Keep them as a well-ordered family, on the closest and most harmonious relations; but never permit one to assume the prerogative over another, or even to issue from its own, or to invade its sister's province. So ordered and maintained, those styles are noblest, richest, and best adapted to the complicated requirements of a highly artificial social system, in which, as in that of the Renaissance, architecture, painting, sculpture, and the highest technical excellence in industry, must unite before its essential and indispensable conditions of effect can be efficiently realised." Upon the walls were hung photographs and drawings illustrative of the subject treated, to which Mr. Penrose directed attention from time to time, and several casts illustrating the French and Italian Cinque-cento had been kindly lent for the occasion by Mr. Brucciani.

In the discussion which followed, Mr. Stannus thought that the subject—the influence of the Italian Cinque-cento upon early French Renaissance,—was especially interesting now that the style of English architecture appeared to be turning in that direction; and several persons he had heard of had visited the valley of the Loire to study the styles. In discussing the question it was necessary to recollect that before the time of Charles VIII., the Flamboyant, a late kind of Gothic, was in existence; and one could see how the details crept in, and how the Gothic architects used the Gothic structural forms, but adapted the delicate ornaments of the Italian style to these forms. One ought to remember that a great number of the details of art, of what was called Francis I. style, came from metal-work chasing. With respect to applying Classical details to Gothic construction, there were many buttresses that were treated as pilasters with moulding round them. He considered that the Renaissance in France was hardly the style to be emulated, the style of a century and a half later being much better. The Renaissance style, he believed, came to France through fashion; there was no particular liking for it on the part of the French; but Charles VIII. and Louis XII. saw that the Italian work was rising up, and they invited the Italian men to Paris; and, of course, when it become fashionable in Paris it was fashionable all over France. One great drawback in Italian Classical art was that one always knew the men by whom the work was done, which case was reversed in Gothic art.

Mr. Ravenscroft thought that, with the exception of one or two names, there did not appear to be any school of men in France that took up the Italian work. Was the work of the church of St. Pierre, Caen, he asked, by a Frenchman or an Italian? While the Italians exercised an influence on the French art, he would like to know whether the Gothic in France, in its turn, exercised any influence on the Italian work; and also whether the influence of the northern work was felt to any extent?

Mr. Clarkson said, with regard to the more severe buildings of the Renaissance style, he certainly thought that there was something of interest in the great chapel of the Escurial to merit the beautiful description given of it. There was not, he considered, to be seen in England, with the exception of the great cathedral, a building on a grand scale, designed with a grand idea. He would like to know the probable causes that for a century or more made the sudden springing up of the revival or new birth of Classic art to be suspended? There appeared a unity of all art in the sense that the very best work of the Renaissance school was very much on the level of the best work of any other school. The Renaissance work and modern work must also be classed in the same category if it only had a true quality in itself.

Mr. Acton Webb thought that the Renaissance had certain defects which were difficult to overcome.

Mr. Penrose, in reply, said that he did not propose the work of St. Pierre, Caen, for immediate study; but what he did suggest, as suited for their severe study, was the court of the Louvre, which was a work of the highest class. He quite agreed that many of the finest works had been produced by men whose names were unknown, but, generally speaking, in the finest works that had been obtained the leading artists had been supported in the heartiest and most liberal manner by their workmen and assistants. With regard to the question whether the Gothic of France reacted upon the Italian, to a great extent it did; and in the earlier period there were, in various parts of Italy, Gothic buildings of a decided northern style; but at that time Italy was so entirely bent upon the revival of their architecture, that they took no heed of Gothic. The chapel of the Escurial alluded to was a very grand work; the walls of its chapel and the piers and arches were very simple—merely granite; its vault alone, however, was ornamented in a manner that was worthy of very great praise and observation. As to the finest work of the Renaissance school being equal to that of any other school, he did not think that such work could rank with the finest of the Greek, although it might with the best Roman work. The question of the practical use of the Renaissance required more than a single evening

o be devoted to it; but he could say that it was a style which, if properly treated, was capable of the greatest success.

At this stage of the proceedings, Mr. Cudwell trusted that the members would show their hearty appreciation of the services rendered by their president during his term of office. To Mr. Tarver was due in a great measure the success of the session, for besides being very regular in his attendance, he had in other ways worked hard in the interests of the Association. A resolution to this effect was then carried, as was also one to the hon. secretaries.

The President, in response, thanked the members for passing the resolution, and then declared the meeting adjourned till next session.

Before the proceedings terminated, the scrutineers declared that the following was the result of the election of officers to serve for the ensuing session:—

President.—Mr. George H. Birch.
Vice-Presidents.—Messrs. John S. Quilter and Bowes A. Paice.
Treasurer.—Mr. J. Douglass Mathews.
Solicitor.—Mr. Francis Truefitt.
Auditors.—Messrs. H. Stannus and P. J. Marvin.
Librarian.—Mr. Walter L. Spiers.
Assistant Librarians.—Messrs. R. E. Pownall and L. A. Shuffrey.
Secretaries.—Messrs. S. Flint Clarkson and E. J. Hayes.
Registrar.—Mr. John S. Quilter.
Collector.—Mr. Alfred Hill.
The Committee.—Messrs. H. C. Boyes, T. U. Cutler, E. Flint, J. Johnson, A. H. Kersey, W. Ravenscroft, W. W. Robertson, R. P. Spiers, J. Sulman, and E. J. Tarver.

EARLY NOTES ON HEALTH AND SANITATION.

THE Scriptures afford us some of the earliest allusions to sanitary requisitions. The Jews buried their dead outside the cities, and the Romans were forbidden by an express law of the Twelve Tables to bury their dead in the city:—"Hominem mortuum in urbe ne sepelito, neve urito" (Tab. x. lib. 12). Salutiferous cleanliness was enjoined by the ceremonial law, in Deut. xxiii. 12, 13. Linnæus, in his "Amœnitates Academicæ," mentions several instances of smells being noxious or poisonous, specially noticing the bilge-water in ships, and the dung and filth of great cities. The Turks, as well as the Jews and Romans, at one time studied cleanliness in person and home, by getting rid of substances that poisoned the surrounding air. The *London Magazine* of 1765 instances an excellent regulation in Paris not yet imitated in London:—"All the slaughter-houses in Paris have been removed to the Isles des Cignes below the capital; before which time the butchers used to slay and prepare their meat in one of the most populous quarters of the city." The principle of establishing regular abattoirs was recognised in Paris in the middle of the last century, and acted upon in the first decade of the present century. In 1765 also burials were forbidden within the walls of Paris, except a considerable fine was paid. Dr. John Rutty, in his "Natural History of Dublin," published in 1772, writes,—"The mischiefs of stagnating air, especially when loaded with putrid steam, have been abundantly shown by physicians in the generation of the low putrid fevers, and particularly by that great friend of mankind, Dr. Stephen Hales, who, with indefatigable zeal, has introduced his ventilators into our prisons, hospitals, ships, &c., to the preservation of many a life; and were it not for the benefit of the natural ventilations above mentioned, undoubtedly this city [Dublin] would be far more unhealthful than it is, though the ill effects of such an air in close weather in the summer, and even in open windows, especially among the poor, are too apparent." That good scavengering and watering of the streets improve ventilation there can be no doubt, and this was understood in Holland long since, for in Amsterdam and other cities the streets were cleaned every morning, before nine o'clock, by the dirt-carriers. In the civic records of the city of London, in the thirteenth, fourteenth, and fifteenth centuries, royal orders, and several municipal ones, will be found for cleansing, and the preventing of nuisances and the poisoning of the air of the city, or of the waters thereof. Orders were even issued against infected persons or lepers entering the city, or leaving their lazar-houses, which were situated outside the town, at Hackney and other places. In 45 Edward III., 1371, a royal order was proclaimed for the preventing of the slaughtering of beasts within the city of London, in which are detailed the abominations and stenches that had arisen from the practice. It was ordered that all oxen, sheep, swine, and other large animals, should in future be slaughtered at the village of Stretteford, on the one side, and Knyghtebrugge, on the other [Stratford-le-Bow and Knightsbridge].

Antoine Gonan, National Professor of Botany in the School of Health at Montpelier, addressed to the National Convention a paper containing the result of some experiments made by him on the "Preservation of Grain and Roots in Workshops, Magazines, and, above all, on Shipboard." He says, "In the year 1786 I tried the experiment of placing different roots, &c., ripe and newly gathered in a box which I had bored for the purpose of giving admission to mites and other insects. At the corners of the bottom of the box I placed several leaves of hart-wort, the odour of which I knew was noxious to several animals. In another I put leaves of horehound, of rue, and of tansy. The boxes thus prepared remained for a full year on the ground under my shelves. At the end of that term I found the roots, &c., perfectly sound, but the odour of the plants more or less remained, and fearing that it might communicate itself to the outward skin, and occasion a disgusting taste, I proceeded to substitute for the former bitter aromatic herbs, such as a little centaury, wormwood, thyme, mint, &c." He thus preserved the grain for a number of years without renewing the plants. Those he presented to the Convention (1793) had been preserved since 1788. He concludes with the belief that if grain and seed, when gathered ripe, be kept from a moist air, they will preserve for a very long period their vegetable faculties, and may be conveyed in safety and planted with success after the longest voyages.

In the "Transactions of the Society for the Encouragement of Arts" in the last and present century, papers will be found respecting dry rot in timber, foul-air nuisances, &c.; and on the subject of ventilation in connexion. Dr. Priestley in the last century communicated to the Lords of the Admiralty a method of impregnating water with fixed air, obtained from an effervescing mixture of chalk and vitriolic acid, and of making an artificial Pyrmont water. The operation was afterwards improved upon by the invention of Dr. Nooth's glass machine, with Mr. Parker's and Mr. Magellan's improvements. The object sought was to give to ordinary water the properties of mineral waters, for the use of the sick on board ship and in hospitals. Towards the close of the last century, Thomas Henry, F.R.S., of Manchester, a member of the Medical Society of London, published "An Account of a Method of preserving Water at Sea from Putrefaction, and of restoring to the Water its original Purity and Pleasantness, by a cheap and easy Process." This paper was afterwards republished, to which was added a "Mode of impregnating Water in large Quantities, with Fixed Air, for Medicinal Uses on board Ships and in Hospitals; and likewise a Process for the Preparation of Artificial Yeast." In the "Memoirs" of the Literary and Philosophical Society of Manchester another similar paper appears by the same author. These papers, and others mentioned, are worth referring to by those who are interested in all that appertains to the history of public health preservation. In the Phil. Trans. will be found several particulars relative to providing fresh water for ships, and the value and necessity of cleanliness and fresh air in ships and buildings.

In an article entitled "Military Reveries," by Dr. Saint John, of Waterford, in the *Anthologia Hibernica*, for March, 1793, the following words under the sub-heading of "Health," occurs:—"The sooner a campaign begins in spring and the sooner it terminates in autumn the more healthy. Troops should be encamped on the side of a dry hill. A quantity of limestone should be burned, and on every Saturday or other stated day in the week, be thrown into the necessaries at the rear of each regiment. The power of lime to dry up animal substances in fermentation is astonishing and immediate; and this would prevent putrid fevers and the contagion of fluxes." The continuation of the subject and the advice given are equally good. In an article in the same magazine for the month of March, entitled "Thoughts on the Nature and Cure of Scurvy," there are many curious remarks concerning the nature of soils and atmospheric air. The writer thinks that "mixed soils, therefore, like mixed aliments, are the most proper for the support not only of the vegetable but animal creation. A due proportion of calcar, silex, and argil seems to be productive of the most salubrious air." In the same article we come upon a passage in relation to the earth houses or sweating-houses worth producing here. It is the old form of Turkish or rather ancient British baths. "Even in this island, the common people have a great predilection in their favour, considering them as a general remedy in most disorders, for which purpose small conical houses are frequently erected on the confines of bogs, woods, and other places where firing can be had at little expense, in which the sick are brought in order to be sweated, and by that means restored to their health. Sweating-houses and fumigating-baths are of the greatest utility in northern climates, and if generally practised in this country would cure or prevent many disorders of which we now complain." In the *Anthologia Hibernica* for June and July, 1793, a "Treatise on Elementary Air" appears, which is both amusing, interesting, and suggestive. The subject is treated in eight chapters. Chapter 1. Of Air in General, and the *pabulum vitæ* of it; 2. Elementary Air gives cohesion to solid bodies; 3. Different States of Elementary Air, and how to discover it; 4. Immutability of it proved; 5. Its Effects upon the Land; 6. Its Effects upon the Waters of the Ocean; 7. On the Internal Effects of Elementary Air; 8. Useful in Spas, &c.

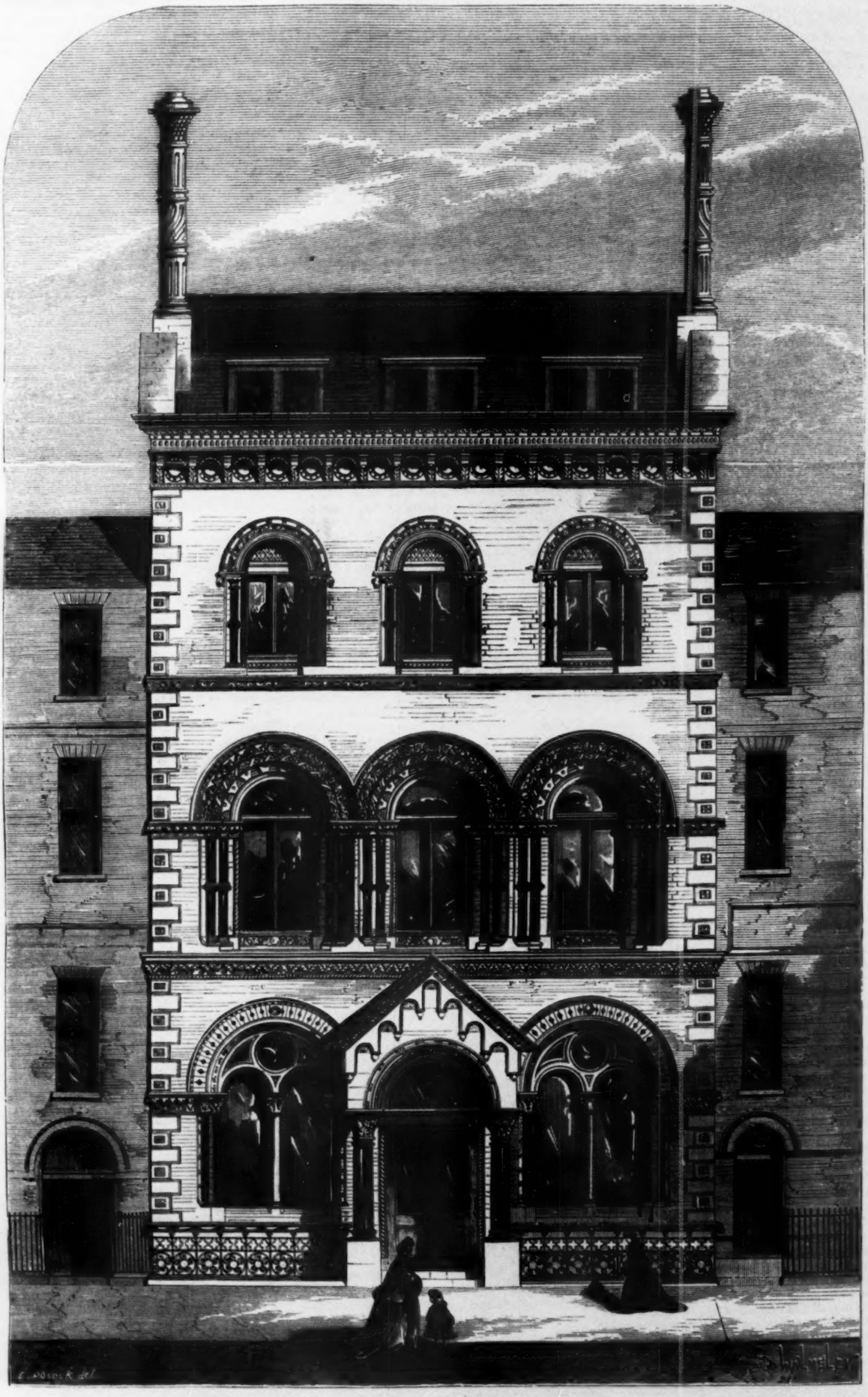
Two works were published in the last century, and were considered popular early in the present century, one of which at least possesses an interest from its author's name,—"Observations on Smoky Chimneys, their Cause and Cure; with Considerations on Fuel and Stoves. Illustrated with proper Figures. By B. Franklin, LL.D. London: sold by I. & J. Taylor, High Holborn." The second was entitled "An Essay on the Construction and Building of Chimneys, including an Inquiry into the Common Causes of their Smoking, and the most effectual remedies for removing so intolerable a Nuisance; with a Table to proportion Chimneys to the Size of the Room. Illustrated with proper Figures. New edition. By Robert Clavering, Builder, London." "The Measuring of Chimneys Reformed," is the title of a work by Venterus Mundey Linden. Printed in the year 1717. It has some curious plans and comments on the subject treated, but it says nothing upon ventilation. The author produced another curious book for the use of building operatives, entitled "The Marrow of Measuring," before the date mentioned.

To sum up for the present, we may mention that scattered through the old volumes of the *Gentleman's Magazine* during the last century, several odd particulars will be found in relation to ventilation and the public health, and the means adopted by individuals and public bodies to meet the difficulty. It has taken a long time to make people listen.

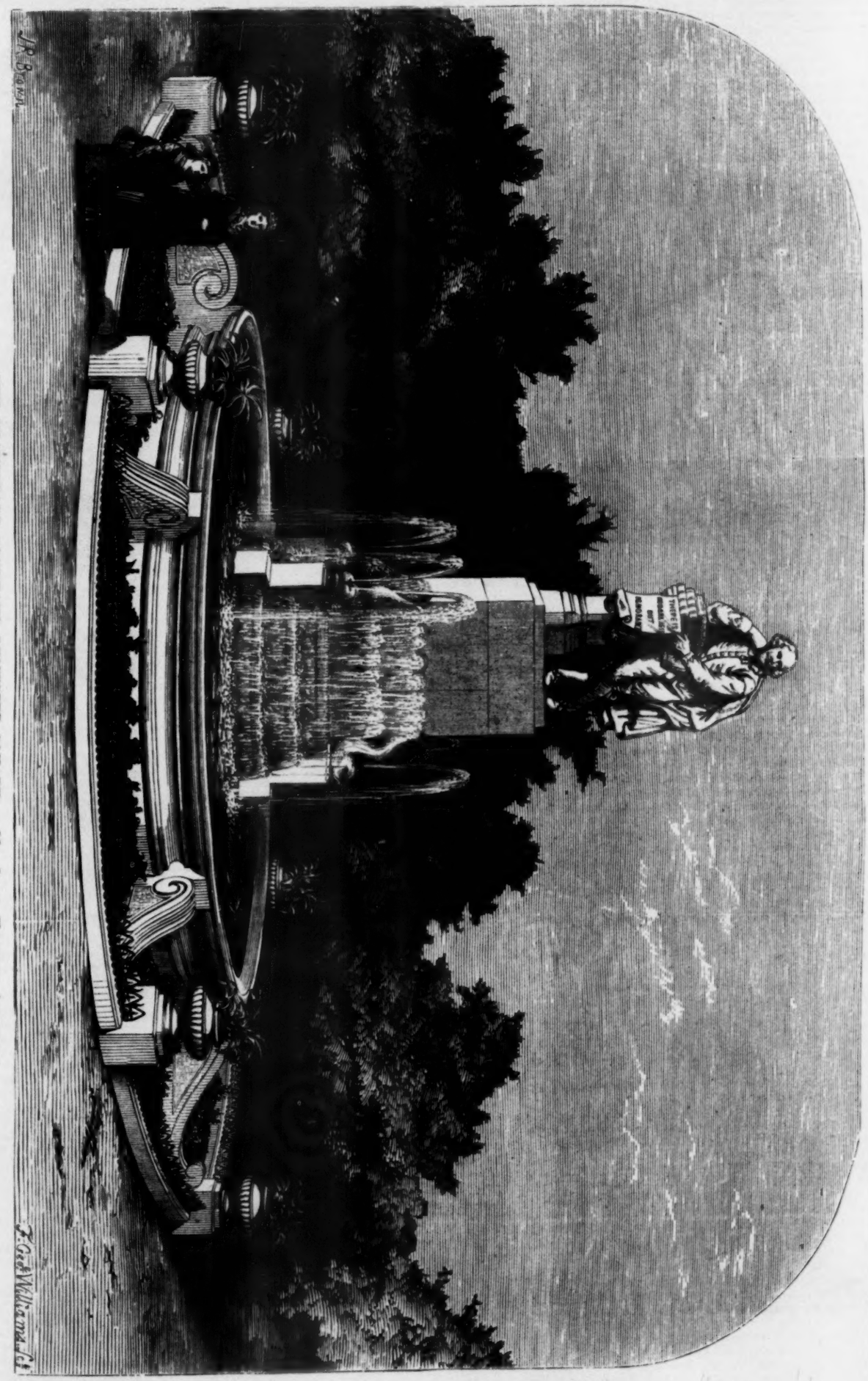
THE TEMPLE.

THE benchers of the Inner Temple have decided to erect some new chambers on their land adjoining the Thames Embankment in continuation of Harcourt Buildings. A similar extension of the Plowdon Buildings is projected by the authorities of the Middle Temple, and it is proposed that if possible the two societies shall agree upon a uniform style of elevation for their respective new buildings, the southern ends of which will face the river. Mr. Sydney Smirke, R.A., was architect and surveyor to the Inner Temple for many years, and until he relinquished the active practice of his profession. On his resignation, the benchers decided to separate the offices of architect and surveyor, and not to have an official architect. Mr. A. Cates was accordingly appointed surveyor, and the post of architect was left vacant with the intention of nominating an architect for any particular work for which his services might be thought necessary. In pursuance of this arrangement, the benchers passed a resolution on the 12th inst., appointing Mr. Edward M. Barry, R.A., to act as their architect in respect of the works now proposed, and above described. The new buildings will occupy a conspicuous position as regards the frontage towards the river, and will mark the boundary at this point of the property of the two societies of the Inner and Middle Temple. Mr. St. Aubyn acts as architect on behalf of the latter body.

Shaftesbury.—The governors appointed to carry out the scheme of the Endowed School Commissioners for founding in this town a second-class school for boys, have obtained an excellent building site, and have elected Mr. James Soppitt their architect.



THE ECONOMIC LIFE ASSURANCE COMPANY'S OFFICES, BRIDGE STREET, BLACKFRIARS.
MR. EWAN CHRISTIAN, ARCHITECT.



THE SHAKSPEARE FOUNTAIN, LEICESTER SQUARE.—MR. JAMES KNOWLES, ARCHITECT.

THE OFFICES OF THE ECONOMIC LIFE ASSURANCE SOCIETY.

THE Economic Life Assurance Society, founded in 1823, erected their new offices in Bridge-street, Blackfriars, of which we now give a view, in 1873, the jubilee year of the society. The new buildings cost about 12,000*l.*, and were erected from designs, and under the superintendence, of Mr. Christian. The front is of red brick and terra-cotta,—the terra-cotta supplied by the Watcombe Works, near Torquay; all ornaments being designed by the architect, and modelled under his immediate supervision. The porch is partly of stone, and has granite shafts, with carved capitals and wrought-iron gates of elaborate and agreeable design.

The office and principal rooms are handsomely fitted, the ceilings framed with moulded wood beams and panels.

The contractor was Mr. Brass, of Old-street, St. Luke's. The modelling of terra-cotta arches over first-floor windows was done by Mr. Phyffers, and is very creditable to him; and the wrought-iron gates were executed by Mr. Shrivell.

THE NEW BARRACKS AT GLASGOW.

MARKED progress is now being made in the construction of the new barracks at Maryhill, Glasgow, which are intended for the accommodation of the troops stationed in the city. The work was commenced so far back as the year 1869. The late Mr. John Kirk, the contractor, agreed to have the buildings completed within three years at a cost of about 100,000*l.* The year after the undertaking was commenced, however, a dispute arose between the War Office and the contractor, which resulted in the suspension of works. The quality of certain materials used in the construction of the barracks formed the subject of dispute, which had to be ultimately settled in a court of law. Representations to the Government of the day had at length the desired effect, and the work was resumed under the direct supervision of the War Office. At the close of the autumn manœuvres at Cannock Chase last year the 32nd company of Royal Engineers, under the command of Capt. Gehle, were sent to Glasgow. This company, which numbers eighty men, all being skilled workmen, are assisted by a detachment of the 64th Regiment, 100 strong, and by a body of civilian artizans numbering between 400 and 500.

The barracks, with recreation and exercise ground, occupy an area of thirty acres, the site being on a portion of the Garioch estate, Maryhill. The land on the west side slopes down to the valley of the Kelvin, and has been secured by Government with a view to its being used as an exercise-ground. The barracks are enclosed within a high wall, constructed in bastion form, with a series of projecting angles. There are two entrances, the main gateway, with handsome stone piers, on the Maryhill-road, and the second entrance from Garioch parish road. As originally designed, it was only intended to provide accommodation for Infantry troops, but the plans now comprise artillery and cavalry quarters in addition. The quadrangular form has been selected, with open parade-ground in the centre, extending to 490 ft. by 380 ft., and will accommodate in all 600 single men, with quarters for thirty-eight officers, twenty-one staff-sergeants, and forty married soldiers.

The position occupied by the officers' quarters is at the north of the parade-ground, and they consist of a range of three-storied buildings, about 350 ft. in length. They are now nearly roofed, and being finished with cut stone, are both massive and ornamental in appearance. The site of the soldiers' quarters, both married and single, is to the south of the parade-ground. In all there will be four buildings, two being of two stories, and the remainder having three flats. The former will accommodate 240 and the latter 360 men. Two of the blocks are in a forward state, but the others have not yet been commenced. The canteen recreation-room and skittle-alley will also be to the south of the parade-ground. To the east of the soldiers' quarters are ranges of buildings, all of one story, consisting of quartermaster's quarters and stores, regimental and barrack stores. Immediately to the south, and extending to the boundary wall are the provost's establishment, powder-magazine, baths, and cook-houses. Ranges of buildings for married sergeants are situate on the east side of the parade-ground. The staff-sergeants' quarters are to the south of these, and also facing the parade-ground. The sergeants' mess-rooms and kitchen will be near the same spot. There is, also, to be a chapel, gymnasium, five-courts, and an infant school in this portion of the site. Only the foundation of the chapel has yet been laid. It is to be in the Gothic style with open timber roof having a bell turret at the west end. On the outside of the boundary wall of the barracks are a series of subordinate buildings. The west side of the square was originally left blank in the plans, but it has since been resolved to erect thereon cavalry barracks and stables for one squadron, and artillery barracks and stables for one field battery, with officer's quarters, &c. The foundations have been laid, and the buildings are in course of erection. The plans have also been prepared of a commodious hospital to be erected on the plateau outside the walls and fronting the south. The new building will stand on a pleasant elevation, commanding an extensive view of the wooded valley of the Kelvin lying between the barracks and the west end of the city.

In deciding on the external arrangements of the new military establishment the authorities have included a thorough system of surface and subsoil drainage, while the internal economy comprises all the most recent sanitary requirements and modern improvements. Among other noticeable features, ventilating grates on a well-known principle are to be used for heating the rooms. An opening is made in the outer wall, and a stream of fresh air passes to a hot-air chamber at back of the grate, whence it is carried by a vertical shaft to the upper part of the room, into which it is admitted by a grating below the ceiling. The vitiated air passes through a foul-air shaft at one end of the room, and escapes through the roof. The stone used in the construction of the buildings is obtained from two quarries opened on the ground, and it is hoped the supply may prove sufficient for the whole work. Fortunately one of the quarries furnishes facing and the other backing stone. At the former a steam crane is being used, by means of which the slabs are hoisted to the top of the quarry, from which a line of rails has been laid on a nicely-adjusted declivity, so that the wagon runs down by force of its own momentum, application of a brake being all that is necessary. These rails were originally made for Sir Garnet Wolseley's expedition. Sufficient coal has also been obtained above the rock, which is being quarried to serve as fuel for all the steam machinery in use. Hopes are entertained that the barracks will be completed about the end of next year, but much remains to be done in levelling the ground independently of the building. The works are being carried on under the superintendence of Captain Gehle and Lieutenants Cardew and Chippendall, assisted by an efficient departmental staff.

A memorial was presented to the Glasgow Town Council last week praying them to approach the Government with a view to convert the site of the old barracks in Gallowgate, when vacated, into an open square, and it was decided to take action in the matter.

LINCOLN ARCHITECTURAL ASSOCIATION.

DURING the recent meeting of this Society in Mansfield, Mr. Harvey read a paper on

Bolsover Castle.

The reader traced its history from the time of Peverill down to a recent period. The celebrated Bess of Hardwick believed that she should live as long as she continued to build, and accordingly she pulled down the old fortress and its basement story, and built dining-room, drawing-room, bed-rooms, two dressing-rooms, which were very uncommon in those days, and above these was a dome or cupola, with eight bed-rooms leading out of it. In the recesses outside the rooms the ladies' maids used to sit until their mistresses clapped their hands to call for their attendance. A secret passage from the fortress to the village was left untouched. It was 6 ft. high, and big enough for two men in armour to walk through it abreast. It was now walled up, and could not be entered. In 1607 when the masons were busy on the roof a sharp frost set in which lasted six weeks. During this time no work could be done, and Bess, who was above eighty-seven years of age, could not last it out. She died, and it passed to Sir Charles Cavendish, who built up the gable end, and part of the ruins, for his servants and guests. His son William, Earl of Mansfield, was a devoted and beloved friend of the unfortunate Charles I., and entertained the King several days in the Castle. In 1633 when the King left he told him he would come the next year, and bring the Queen to partake of his hospitality. One hundred workmen were at once summoned, and on the return of his Majesty, Duke William welcomed the Queen in regal state in a suite of rooms which he had built for her reception. The King and Queen stood on the balcony, which still remained, and bowed to the subjects assembled below to greet them, whilst Ben Jonson, the poet, acted before them a mask called "Love's Welcome." Duke William added greatly to the ornamentation of the castle. He also built the first riding-school ever seen in England, the shrubbery ground serving as his tilt yard. On the fall of King Charles he escaped to Antwerp, and there wrote his celebrated treatise on horsemanship, a work which was still prized as an authority on the subject. One of Cromwell's generals took possession of the Castle, and the mark of one of their cannon balls was still to be seen on the walls near the stables. After the restoration of Charles II. the Duke and Duchess returned to the Castle, and it was kept up in its entirety until 1740. Shortly after that date there was a disastrous fire at Welbeck Abbey, and the then Duke of Portland sent over his wagons to Bolsover to remove the leaden roof to assist in repairing his damaged buildings. It was ultimately assigned to the clergyman as some compensation for the tumble-down vicarage-house, and the living was given to one who restored the Castle to its present state, and finished it as well as he could. In its dilapidated days it was preserved from intrusion at nightfall by the terror of a ghost, who was said to be the Lady Arabella, niece of Mary Queen of Scots, a lady who was set up by the Roman Catholics as a claimant to the throne. The cries of Lady Arabella were now no longer heard, and there were no ghosts at the Castle. She died mad in the Tower of London in 1615.

The Rev. Henry Cottingham discoursed on

Hardwick Hall,

observing that its history carried the mind back to generations of noble men who had been the possessors of it. The manor of Hardwick was granted by King John to Andrew de Beeham, and later on it was held by the annual rental of 3 lb. of cinnamon and one of pepper. The Hardwicks possessed it for six generations, when Elizabeth, the third daughter and co-heiress of Mr. Jno. Hardwick, brought the estate to her second husband, Sir William Cavendish, from whom it had descended to its present noble owner. The building, surrounded on all sides by an undulating and well-timbered park, presented in the distance, or when viewed from a nearer point, a striking feature in the landscape. Of the founder of the building they had no certain evidence; but in the central part of it vestiges remained among the ruins which were of the time of Henry VIII. There was a stately room still to be seen which, from two colossal figures over the fire-place, had acquired the name of the giant's chamber. It had long been considered by architects as a perfect specimen of grand and beautiful proportions, and he had authority for saying it was thought fit for the pattern of a room in the palace of Blenheim. A portion of the original building was standing until the time of William III., when it was pulled down and the timber used at Chatsworth. The present house of Hardwick commenced about 1576, and was finished about 1600. The statement current in the neighbouring villages that Hardwick Hall had more glass than wall was literally true, and nothing could present a more fairy-like appearance than it did when the setting sun threw its golden rays upon it, and lighted it up with its splendour. To state who was the architect who designed and superintended the building was no easy matter; but the Smithsons, father and son, who were architects of Wollaton Hall, had probably a claim on this monument of great professional genius. The chimney-pieces were very fine, being larger and better executed than those in the old hall. One in the dining-room was decorated, and in words of gold they were admonished that the conclusion of all things was to fear God and keep His commandments. The glory of Hardwick was its tapestry, and in this respect it was not excelled by any other house in the kingdom. In the great hall along the grand staircase the subjects were mostly taken

from Rubens whilst in the Presence Chamber, the history of Ulysses is represented. In the long gallery there was tapestry more ancient, dating as far back as 1428, and that on the staircase, from the costume of the figures and treatment of the subject, was probably of a still earlier date, and was very grand. The pictures were by Holbein, Moore, Sir J. Reynolds, Gainsborough, Sir Francis Grant, and many others, and were an excellent collection. Mary Queen of Scots was detained at Hardwick seventeen years in the custody of the Earl of Shrewsbury, and there was her portrait at full length as she appeared dressed in a mourning habit. It was dated 1578, the 36th year of her age, and the tenth of her captivity. The noble earl and his wife did not agree very well together. At first all was happiness, and he thanked God he had met with such a woman: but a change came.

Mr. M. H. Bloxham, of Rugby, read a paper on

Rood Screens, Rood Lifts, and Rood Altars.

He said during the first two centuries of the Christian era they had little information of material buildings purposely erected and set apart for divine worship. In the early part of the third century, however, places appropriated to the purposes of Christian worship appeared, and in the latter part of the same century or early in the fourth, some slight account was given of the arrangement of the sacred structures. "Let the building," said an old document, "be long, with its head to the east and its vestries on both sides at the east end." At the commencement of the fourth century, in the tenth and last general persecution, it was ordered by the edict of Diocletian that the churches should be levelled with the ground. Many of them were consequently destroyed, but on the cessation of the persecution others were built, and not a few heathen temples were converted into churches. In the fourth century a distinction between the different portions of the church, the body and the sanctuary, which were now designated as the nave and chancel or choir, was shown to have existed. In our own country of Britain the introduction of Christianity appeared to have taken place at an early period, though at what precise time could hardly be ascertained. He passed by the story of the Pope who flourished in the year 180, but they knew that the bishops of the ancient British church attended the Council held in the year 314. Bede told us that the Pagan Saxons, in their successful endeavour to obtain ascendancy in the country, destroyed the churches of the British Christians, slew their priests, and upset the altars. Augustine came on a mission from Rome to introduce Christianity, and there was an allusion to one religious church, the church of St. Martin, near Canterbury, probably on the site of the present church. He believed the reconstruction to be of a period not earlier than the twelve century, but it contained, worked up in the walls, Roman tiles and bricks, evidently fragments of an earlier structure. Remains of ancient British churches were by some thought to have been discovered on the coast of Cornwall under the diggings of the sand, but he did not think we had any churches or remains of churches in this country earlier than the seventh century. In these they saw the present features of arrangement, the tower, the nave, and the chancel; the tower sometimes placed at the west end of the church and sometimes between the chancel and the nave. The Saxon chancel arches were often exceedingly narrow, and he did not think there was any screen or division of wood across these arches in the Anglo-Saxon churches. He believed the division between the chancel and the nave was formed by a curtain. The earliest chancel-screen he had met with in this country was one now removed from its original position in the church of Thurcaston, in Leicestershire, a village known as the birthplace of Bishop Latimer. Specimens of screen work of the fourteenth century, though not very numerous, were more common than those of an earlier period, whilst in the fifteenth chancel screens were so numerous that he did not think it necessary to refer to any particular examples. In several old documents they found that money had been left to build rood-lofts, and in Machin's diary was the following entry:—"The second year of the Queen Elizabeth was all rood-lofts taken down in London." In the visitation articles of Archbishop Parker, in 1569, inquiries were to be made whether the altars had been taken down, whether the images and other monuments of idolatry and superstition were destroyed, whether the rood-lofts were pulled down according to order, and whether the partitions between the chancel and the church were kept, showing that the screens were to be kept.

CISTERNS AND DRAINS.

COUNCILLOR JAMES GOWANS, of Edinburgh, has done some service to his countrymen by publishing his views—which are very sound as far as they go—on the important question of the bad sanitary condition of their cisterns and drains. The subject is not new, of course, to our readers; and those who choose to refer back to our researches on the condition of Edinburgh, Glasgow, Stirling, Perth, Dundee, and other towns in Scotland will find that we then pointed out the very prevalent but fatal mistake of planting water-closets in the very centre of the tenements, destitute of any communication with the external atmosphere, and accordingly without either light or ventilation. At most we found as a general rule that both of these elements were derived from the common stairs, which thus became, in every sense of the word, a common nuisance; and for this obvious reason, that the common stair itself was unventilated and ill-lighted. Such evils were not confined to common stairs. Nothing, we also discovered, was more common in the water-closets of self-contained houses than the cistern which supplied the water for domestic purposes being placed immediately overhead; and, considering the great powers of absorbing gases which water possesses, we came to the inevitable conclusion that such cisterns were, as a means of propagating disease, dangerous in the extreme. Writing with similar views, Councillor Gowans, at the request of the Local Health Committee, has recently issued the following suggestions (see the *Scotsman* of June 20th), premising that although he does not wish to alarm any one unnecessarily, still a large number of fatal cases are constantly occurring which may be traced to such highly imperfect sanitary arrangements. We condense the gist of his observations. He recomends—

1. To cleanse thoroughly and systematically all cisterns which contain water for domestic supply.

"Cisterns should only be placed where easy access can be got for cleansing them at fixed periods, and those who leave town for the summer season should not neglect to have their cisterns seen to before they again occupy their houses, and also that the water is let on so as to fill cesspools [or traps] which, during their absence, have become dry. Cisterns ought to be in a convenient and accessible part of the house, and not stuck up in the roof, or immediately under or over watercloscts, as many are. In large establishments I would have a cistern-room, where everything would be clean and cool, as it ought to be."

2. To cut off all connexion between such cisterns and the house-drains. The overflow-pipe of the cistern is usually connected with the cesspool of the closet, whereby the bad air of the drain finds an outlet, within an inch or two, it may be, of the surface of the water in the cistern. Cut off this connexion with the drain, and allow the overthrow to vent into the bath, sink, or other open space.

3. To provide a special cistern for the supply of all sanitary conveniences. Wherever it can be done I would have two cisterns, one for domestic supply and the other for sanitary purposes; because, although the overflow-pipe of the cistern may be cut off from the drain or soil pipe, you have still a pipe in connexion with the closet, which at best is objectionable. [Very objectionable indeed.]

4. To see that all traps to cesspools have an air-pipe to prevent suction. As to the fourth, many of the traps or cesspools in use are deceptive, owing to the want of an air-pipe, and no householder should rest satisfied until he has seen whether this indispensable adjunct is attached to the cesspool or not. A double trap is the surest preventive, as the one bend always holds good while the water or soil is being displaced in the other. [Bad gases will force their way through even "double traps" if there be no ventilation.]

5. To see that the outflow-pipe of fixed washhand basins empties to the open air. As to washhand-basins, where these are connected with the soil-pipe, nothing is more likely to allow bad air to get into a dwelling, and if the outlet cannot be got quite apart from the drain such basins would be better dispensed with altogether.

Mr. Gowans then proceeds to comment on some of the evils of the present system of water-closets, and urges very strongly upon Scotch architects the necessity of planning houses in which these sanitary conveniences, as well as all others, should be lighted and ventilated from the outer wall of the building. When this is done, drains are kept where they ought to be, as when drains are placed under the building there is a great risk of the sewage finding an outlet from badly-made joints, whereby the whole substratum gets gradually soaked, and the house becomes unhealthy very soon. And, therefore, I would advise householders to put more value upon dwellings where the water-closet, scullery, or such places are kept on the outer wall. If this were done, I am certain that many of the cases which swell up our death-rate would be prevented, and the difficulty there is in carrying out the Provisional Order and Public Health Acts would be more easily overcome.

It is impossible to overrate the importance of such suggestions; and we are sorry to understand that neither of the numerous Acts of Parliament relating to the public health of cities, towns, burghs, and populous places in Scotland has the necessary power to make such provisions compulsory. Notwithstanding all the legislation bestowed upon Scotland during the last twenty years, sanitary matters remain very much in their previous condition. Vile common stairs are every day built; unsanitary tenements are every day erected. There is no proper supervision of the construction of a house-drain; nor of its connexion, whether level or otherwise, with the street sewer. As to the ventilation of sewers we have very little account of progress. We cannot but share in the opinion of the great necessity of making the following appeal to plumbers:—"A word to plumbers before I am done. No tradesmen connected with the erection of a house have a greater responsibility in the way of making it healthy or unhealthy. Cesspools without air-pipes, badly-made joints, and such like result in what they themselves would deplore could they foresee the consequences, and I would beseech them not only to do their work thoroughly, but to set their minds to such contrivances as would prevent bad air from getting into houses at all, as far as their work was concerned." [Only we are just afraid it may turn out nugatory. "I can call spirits from the vasty deep," says Owen Glendower. "So can I," said Hotspur, "or any other man. But will they come?" Plumbers are rather more prone to indulge in the pastime of burning down cathedrals in our day than of inventing improvements. But let us hope they may take "a thought and mend."]

THE LATE SIR CHARLES FOX.

THIS eminent civil engineer died at Blackheath. He was the youngest son of Dr. Fox, of Derby, and was born in that town on the 11th of March, 1810. He intended when a young man to enter the medical profession, and studied for some time with this object with his brother, Mr. Douglas Fox. His natural bent lay, however, in the direction of engineering and constructive design, and even in early youth he manifested unusual mechanical skill. He therefore, at the age of nineteen, according to the *South London Chronicle*, joined the well-known Mr. John Ericcson, then in business at Liverpool, to whom he was articled, and whom he assisted, among other things, at the trial of locomotive engines at Rainhill, on the Liverpool and Manchester Railway, in the year 1829. He was then placed by the late Mr. Robert Stephenson on the London and Birmingham Railway, then in course of construction; first at Watford; and afterwards in charge of the Extension Works from Camden-town to Euston-square. Upon the completion of this work, he joined the late Mr. Bramah in the manufacturing firm of Bramah & Fox; and some time afterwards, upon the death of Mr. Bramah, became the senior partner in the firm of Fox, Henderson, & Co., of London, Smethwick, and Renfrew. Since the year 1857 he has practised in London as a civil and consulting engineer, with his two elder sons, who have continued the business under the firm of Sir Charles Fox & Sons. During the forty-five years of his professional life, Sir Charles had been engaged in works of magnitude in all parts of the world. He was the inventor of Fox's safety switch, and contributed largely to the improvement of the permanent way and fittings of railways and of ironwork construction generally. His chief work, however, was the building in Hyde Park for the Exhibition of All Nations in 1851. The late Sir Joseph Paxton having suggested the idea of a structure of iron and glass, up to that time never applied on a large scale, Sir Charles (then Mr.) Fox was enabled, from his intimate know-

ledge of ironwork construction, at once to grasp the importance of the proposal, and with his own hand to work out most of the details. His firm took the contract for the erection of the building, and work having commenced towards the end of September, 1850, the Exhibition was opened by her Majesty in person on May 1st, 1851. In connexion with this event, Sir Charles, in conjunction with Sir. W. Cubitt and Sir Joseph Paxton, received the honour of knighthood. His firm afterwards removed the building from Hyde Park, and re-erected it, with many alterations and additions, for the Crystal Palace Company, at Sydenham. Sir Charles had been a member of the Institution of Civil Engineers since 1838. He was also for several years a member of council of the Institution of Mechanical Engineers.

ST. MARY'S CONVENT, YORK.

THE chapel of St. Mary's Convent, Blossom-street, York, one of the oldest Roman Catholic establishments in England, has been restored and redecorated; the reopening taking place in connexion with the ceremony of the veiling of a couple of ladies as nuns. The entrance to the chapel is through a pair of small folding-doors, directly opposite to which, in the vestibulum, is a small new stained-glass window, in which are representations of St. Joseph and "Mater Admirablis," surrounded with tracery after the style of work in the window known as the Five Sisters in York Cathedral. Passing into the chapel, the organ is seen over the inner entrance, supported upon pillars, and reaching to the ceiling. The instrument has, in the hands of Messrs. Foster & Andrews, of Hull, been thoroughly renovated, whilst the whole has been cleared of its case, and the pipes, which are thereby exposed, have been coloured and decorated. The organ-gallery front is now what may be termed arcaded, and the capitals of the columns carved. On each side of the doorway are statues of St. Michael Archangel and St. Sebastian, which have been restored, and placed on new pedestals. Down the centre of the flooring of the chapel, which is all new and of pitch pine, is laid kamptulicon, crossing at the centre to the aisles. The whole of the inner part of the dome has been renewed, and a new window here represents, in stained glass, the subject of the Shepherds and the Kings. Throughout the chapel there is a consistency in the style of decoration. Mr. Wm. Lewis was the architect employed; Messrs. Hansom and Messrs. Weatherley & Rymer, of York, did the joiners' work; painting and decoration, Mr. Coupland, York; mason and bricklayer, Mr. Harrison; brasswork, Messrs. Hart, Son, & Peard, of London; wood-carving, Mr. George Milburn, York; and furnishing, Messrs. Taylor and Messrs. Day.

ROWNER CHURCH, FAREHAM.

THE picturesque and ancient little church of Rowner, near Fareham, Hants, has been opened by the Suffragan Bishop of Guildford.

The living is in the gift of the Prideaux-Brune family, having belonged to them since about the year 1226; it is now in the occupation of the Rev. R. Foster Carter, who has held it for the last twenty-seven years.

There is a charter in existence of Hamò Brito de Ley, which grants to the Abbey of St. Mary in the Stone Quarry certain lands in Rowner; there is also a charter of John de Gisory, which grants to the Abbey of St. Mary in the Stone Quarry a certain piece of land in his Manor of Cleere. An agreement appears to have been made in the year 1266, between the Abbot and Convent of Tickenfend and the Abbots and Convent of the Stone Quarry, whereby the sum of two shillings yearly was to be paid as tithes out of the Stone Quarry, Monks' Windmill, at Cleere, and small tithes payable out of the possessions of the said Monks at Cleere.

By a charter of King Edward I., dated 6th February, in the fifteenth year of his reign, given at Woodstock, the King gave to his beloved servant William le Brun and Isolde his wife the Manors of Fordinbirge, Randslueston, and Rovenore, and the advowson of the church to the said Manor of Rovenore anciently belonging, which became forfeited to the King by reason of a felony committed by William de la Faleyse, for which he was outlawed, as appeared by an inquisition taken by the sheriff and the record of the coroner of the same county, witnessed by the venerable Father R. Bishop of Bath and Wells, Chancellor, and William de Valencia.

This last-mentioned charter is beautifully engrossed on parchment, in contracted Latin, and in perfect preservation.

There is to be seen at the Record office a letter of Sir John Brune to Sir William Cecil dated Rowner, 16th November, 1552; there has also been found at Doctors' Commons his will, dated 14th September, 1559, and proved on the 16th day of May, 1560, in which he gave a bequest to Rowner Church, and *inter alia*, directed that his tomb should be erected, and that his houses at Rowner and Parley should be restored. This proves that the family at one time resided at Rowner.

This tomb is now in existence, and has been cleaned and repaired; it bears the above date, but there is no inscription of any sort, but simply the quarterings, which denote the intermingling of the Brune family with others, including the Tichborne family. The marriages are, however, not quite clear prior to the year 1559.

Up to the time of commencing the restoration of the church in August last, the fabric had fallen into a very dilapidated state, and, as was seen when the roof was taken off, was in a much more dangerous state than was anticipated. A very short time longer would have sufficed to bring the old belfry down crashing through the roof, for it was supported only by a piece of timber which had become reduced to 1 in. in thickness. The walls, though of great thickness, were not sound, and were composed of various stones of different shapes, which were not calculated to have a pleasing appearance externally, so they had all been rough cast. All these walls have been pulled down and re-erected, from the top of the foundations, in stone, and pointed. The old roof was ceiled. The new roof is an open timber one, stained and varnished. The old-fashioned high pews have given place to the more modern open seats. There is a new nave running parallel with the old one; and the communion-table is now transferred from the Rector's chancel to the evidently original place, the patron's chancel, where is situated the handsome monument of the Brune family. A new porch has been put to the south entrance, and a Norman arch, which had been hidden for many years by the "rough cast," has been utilised in the new entrance to the vestry. The amount expended upon the works has exceeded the original amount intended, in consequence of the additional nave. Messrs. Radley's tender of 800*l.* was accepted in August, but the actual cost of the restoration has been about 1,100*l.* Mr. Frank E. Thicke was the architect. No clerk of works was employed.

THE CREWE SEWAGE FARM AND WORKS.

THE many difficulties which have for several years been connected with the disposal of the Crewe sewage are thought to have been satisfactorily disposed of. The Board have acquired on a lease for twenty-one years about 300 acres of land in Coppenhall, about one mile and three-quarters from the town. The town sewage is conveyed by gravitation to the farm, where it will ultimately be received in two tanks, each holding 600,000 gallons. Only one of these tanks is as yet completed, the other being in course of construction. The large pumping-engine has been recently removed and re-erected by Mr. Hill, of the firm of Messrs. Massey & Hill, Stafford. This engine, which is of 30-horse-power, but will work up to 40-horse-power if required, pumps the sewage water out of the tanks, after which it is conveyed on to the land by means of gutters, or "carriers." In addition to the large engine are four of Messrs. Tangye's special pumps, which will be used as auxiliaries. The sediment left in the tanks is drawn up by chain pumps, and applied to the land with the night-soil and the contents of the ashpits, &c., which are drawn to the farm in carts and tanks. In preparing the ground for the reception of the sewage, the turf portion is broken up and burnt; and the whole of the land has been drained to a depth of 4 ft., and ploughed to a depth of 2 ft. At the present time the crops on the farm are said to be in a luxuriant condition; but it is the intention of the Board, we believe, to cultivate rye-grass on about two-thirds of the land belonging to them. This will be a boon to the inhabitants of Crewe and the neighbourhood, who will thus be enabled to procure good provender for their horses or cattle at a cheap rate. The sewage water as it runs off the farm, after having been denuded of its fertilising properties, appears to the eye clear. Whether the sewage farm will be a profitable investment for the ratepayers, time alone of course can tell; but it is the opinion of many that ultimately it will repay the outlay which has been made upon it.

SCHEME OF SEWERAGE AND OTHER IMPROVEMENTS AT BATLEY.

A SCHEME, consisting of the following items, has been unanimously adopted by the Batley town council:—Sewerage works, 36,060*l.*; new causeways, 11,090*l.*; purchase and improvement of the town-hall, 5,000*l.*; erection of market-hall, 4,650*l.*; for the purpose of forming and paving market-place and contiguous streets, 1,850*l.*; and for street improvements, 1,350*l.*; total, 60,000*l.* A resolution has also been passed asking the sanction of the Local Government Board to a sum of 2,000*l.* for the erection of a small-pox hospital.

PRODUCTION OF RAIN AT WILL.

SIR,—As the lately prevailing drought will probably make any discussion on the cause of rain interesting, perhaps you may deem the following worthy of insertion in your columns.

In 1840, at the meeting of the British Association, I submitted for consideration a theory on the cause of rain, which was that the minute particles of water, acquiring electricity in accordance with their temperature, are buoyed up into the atmosphere by their electric coatings (as particles of gold might become buoyant in water if coated with cork), where, on becoming colder, their capacity for electricity being reduced, they become surcharged, but being insulated the particles retain their electricity, and are still buoyed up by it, until from the conducting condition of the air, or from passing over high hills, the surcharge of electricity escapes and the particles fall as rain. On this theory, then, ordinary rains prevail in accordance with the conducting condition of the atmosphere, and I suggested that experiments on the subject should be tried by raising balloons with conducting wires, which, if the theory be correct, would produce rain from any passing cloud.

This experiment I suggested as a test for the theory, and not from any idea that it could be practically of use, although experience alone could decide that question. However, other means for producing rain might be effectual and not costly. Heavy rains (*i.e.*, thunderstorms) are generally from dense clouds of very great depth, and, I believe, in the first place result from the particles of vapour being pressed together into rain drops, after which a greater discharge of rain may be caused by the air being brought into a conducting condition. Enormous clouds occasionally pass without a drop of rain falling from them. In every such cloud, according to the known laws of electric distribution, each particle must be equally charged with electricity, and each if free to move would float at the same level, and as the atmosphere diminishes in density according to the elevation, it is obvious that all the particles of cloud below that line of level must press upwards, and all above that line must have a tendency to sink down to it: the particles in the middle of the cloud are thus under some pressure, both from above and below, and any concussion of the air within such a cloud would probably cause rain. The firing of rockets into such a cloud might produce some such effect, but I believe a much more effective concussion of the air might be produced at very little cost, of which the following statement of an act of folly of my own may serve as an illustration. About forty or fifty years since Queen Adelaide visited Oxford, and in anticipation of the illumination on that occasion like other children of larger growth, I did my best to add to the noise and hubbub by preparing some bangs. These were simply small quantities of gunpowder of half or three-quarters of an ounce each, around which I glued odd bits, from time to time, of canvas, paper, string, &c., till each case was not less than an inch in thickness on every side, and probably had as great a resisting power as any case of metal of a like thickness would have had; the result being that in exploding the first, by way of experiment, a few yards from the front of my house, which fortunately stood alone, I brought down almost every pane of glass and rendered myself nearly stone deaf for several hours. From these effects I have no doubt that a few pounds of gunpowder, treated in a similar manner and

with a thickness of case in proportion to the quantity, would produce a concussion of the air sufficient to cause some such result as those I anticipate. In preparing such an article a small tube should be left from the first for the insertion of the fuse, and each layer of paper, &c., should be dry before covered with another. In firing such an article, advantage should be taken of any elevation.

G. A. ROWELL.

THE LATEST CRAZE.

IT was with mingled feelings of surprise, wonder, and amusement that I read Mr. Stevenson's paper on "The recent Re-action of Taste in English Architecture," together with your leader thereon. Truly I felt inclined to offer, as did Artemus Ward in one of his amusing stories, "Five dollars to the man who tells me who I am and where I am!" So we are at last landed in this anti-climax of the age of revivalism, the so-called "Queen Anne Style!" Having discovered a new *point de depart* we are now to trot merrily along until we suddenly find it to be all a mistake, and have to "hark back" to another age, which, as a natural re-action to architecture based on cabinet-making, will perhaps be the neolithic age of stone.

Seriously speaking what inference are we to draw from this instability of taste? Can it be otherwise than that the art of architecture is a lost one, and that all our ideas of it are based on principles that are fundamentally false? Certainly it seems to me to be reduced to something just above tailoring, and a trifle beyond millinery! Let us see if we can philosophically account for the latest change.

Undoubtedly of late years the artistic element has been predominant, and the architectural features and forms in use not having been naturally evolved by the necessity of the day, but rather the result of an over and, to a large extent, unintelligent admiration of antiquity, the utilitarian view has forced itself upon us; but not being natural in anything we do in architecture, rather than trust to our own resources, we have fallen back on the age of Queen Anne, and a less artistic age it would perhaps be difficult to find; therefore, as being the greatest novelty, we have chosen it.

That man is an imitative animal was a discovery made even long before Dr. Darwin published his views; and were one inclined to be sarcastic, which I am not, it might be said that the "missing link" should be looked for in the architectural profession; indeed, with all this constant reversion to olden types, it would hardly surprise me to find our ears growing pointed, the canine teeth becoming longer, and other symptoms of a return to the ancestral forms which the greatest naturalist of the day has credited our progenitors with.

Without claiming for myself any special exemption, it seems to me that the practice of the profession is too often to design pictures and then build them. One cannot but admire the skill in this way, shown by some of our rising men; and though I, as much as any one, admire some of their spirited designs, it is at the same time with a lurking suspicion that all is not right, — that in fact, they are, though good compositions, picturesque in outline, varied and harmonious in detail, architecturally speaking, an embodiment of false principles. This is a feeling that has grown with me, and which the Queen Anne bathos, into which we have glided, is not likely to do otherwise than strengthen.

To criticise is easier than to point out a remedy for the architectural evils of the day; but so far as my experience goes, I think a course of scientific training would be the best corrective of this excessive,—if I may coin a new word,—artisticism. Whatever the abilities of our architects may be, and they are great in particular lines, there is a sad want of scientific knowledge such as that which Wren pursued, and which made him, independently of fashion and taste, an architect of all time.

T. MELLARD READE.

Value of Land near Plymouth.—At a sale, Saltmoor and Woodvale, West Whitleigh, comprising a dwelling-house, farmhouse, cottage, and 51a. 2r. of pasture, arable, and garden land, were purchased for 3,250*l*. Lot 6, 9a. 1r. of garden, pasture, and arable land at Honicknowle, bought for 750*l*. Lot 7, 24a. 1r. of pasture and arable land at Honicknowle, sold for 1,800*l*. Lot 10, 17a. 1r. of arable land was bought for 755*l*.

SEWER BUILDING.

"AN Engineer" says in the *Builder* that the plan of manholes or lampholes as given in Mr. Latham's book was *devised* by Mr. McKie some twenty-two years since, and was subsequently *matured* by Mr. Rawlinson and Mr. Lawson. Let me inform him that a plan of mine for "manholes" to a tubular system of sewers was published and distributed among engineers long before Mr. McKie, or Mr. Rawlinson, or Mr. Lawson *devised* and *matured* it. In truth, my plan, and that of E. Wiebe, which "An Engineer" says was adopted from Mr. Rawlinson's works, are so nearly alike, as will be seen on comparison, that one would infer the latter was *matured* from my plan and evidence.

The following is the evidence referred to, extracted from the First Report of the Metropolitan Sanitary Commission, 1847:—Proposed Access to Tubular System of Sewers.—"Would you build side entrances to a tubular system of sewers?—In some situations I would do so; but I believe their use, in some degree, might be superseded. Means of access to the sewers, so as to be able to get at and remove accidental obstructions, would readily suggest themselves. A shaft, having a strong movable grating, on top, could be built over the sewer, with ladder-irons built in the angles, to admit a man to go down and up, with a recess at the bottom on one side to give room. This shaft may be also made to serve as a ventilator." My idea was to build a series of "manholes" to the pipe-sewers at the intersections of streets, and at intermediate places "for inspection, for cleansing, for flushing, and for ventilation," as described by "An Engineer," as well as for obtaining long curves at the angles and connexions which could not be obtained by the usual pipe junctions and bends.

JOHN PHILLIPS.

VENTILATION OF DWELLINGS.

SIR,—It appears from the *Builder* of June 6th, p. 475, that the directors of the Improved Industrial Dwellings Company desire designs, with descriptive particulars, for dwellings for the industrial classes, to be erected on a large site in Goswell-road, and that they offer premiums of 250*l*. and 150*l*. for the first and second best plans, and amongst the particulars relating to construction to be observed are:—

(*a*.) The dwellings must be self-contained, with the entrance-door opening to the external air.

(*b*.) Each dwelling must be so arranged that a free current of external air can be passed through the dwelling by opening the doors and windows.

Now in Spon's Dictionary of Engineering, just completed, there is a very elaborate article on Ventilation, illustrated by forty-nine woodcuts, and occupying about twenty-six pages of letter-press, in which occurs, at p. 3,025, the following:

"No system of ventilation can be considered perfect that allows the fresh air to enter at the same temperature as that of the external air, and experience has shown that no such system can be successful even in effecting an adequate ventilation by reason of the opposition it meets with. . . . . .

The condition of warming the air previous to admission greatly complicates the problem of ventilation, but it must be considered as essential to any system."

These two statements are apparently so very contradictory, perhaps some of your scientific readers will ventilate them, and tell us which is right. My own simple plan, which I have practised for years with a large family, is to always keep bedroom windows open a little at top; in fact, they are so made that they cannot be shut close, and never are, except on the very coldest nights in mid-winter. Bedroom doors are also left a little open, care being taken that no draughts pass over the head of the beds. This keeps us all in good health, and free from doctors.

J. B.

Farringdon Market Competition.—We are informed that the Corporation of London have awarded, on the recommendation of the Markets Committee, the following prizes, in regard to the designs which were submitted in competition for this building:—First premium of 300*l*. to Mr. Lewis H. Isaacs; second premium of 200*l*. to Mr. J. D. Mathews and Mr. Thomas Blashill; third premium of 100*l*. to Mr. T. E. Knightley. The three extra premiums of 50*l*. each were awarded respectively to Messrs. Butler & Deshon, Mr. Robert Walker, and Messrs. Driver & Rew.

THE STRIKE AT CHARTHAM.

SIR,—I have this moment had my attention drawn to a notice in your publication for last week, headed "Canterbury," which states that "500 bricklayers and labourers employed at Chartham on the County Lunatic Asylum have struck work for an advance of ½d. an hour," and you go on to say, "the contractors (Messrs. Furness) are under an engagement to complete the work under a specified time."

I know you are anxious to do justice in all cases, and as your information is not quite accurate, I think it desirable to put you right by giving you the facts. In the first place, it is not "Messrs. Furness" who have the contract, but "F. Furniss"; and secondly, only the bricklayers asked for the one o'clock on Saturday; the labourers were willing to continue the usual system of working until four o'clock on that day; but as the labourers would have been useless without the bricklayers, I offered them the one o'clock system, which they accepted with the advance of ½d. an hour.

It is true that as in all contracts there is a time named for completion, but my contract with the justices fully provides for any extension of time in consequence of any delay caused by strikes and I may say that if another attempt is made (this being the second this summer) to gain a further advantage, the justices are ready and willing to stand by me, as I am paying the bricklayers 8d. an hour, and labourers 5d. per hour, and this is considered an excessive rate for that part of the country.

FRED. FURNISS.

RESCUE FROM FIRE.

WHILST examining the stock of a retailer of indiarubber articles, I inquired the use of a lot of stout vulcanised rope cut into various lengths, and was informed they were for boys' catapults. It occurred to me that the manufacturers of this article might drive a more useful trade than exciting boys with those dangerous machines to knock people's eyes out. I beg to propose a cable secured to the first and last house in a street under the coping, a strong brass ring and hook, with a rope to bring the hook to any house and window in the row, to rescue inmates from fire; those below to pull the life-line downwards, when they have tied a sheet, &c., round them, for the hook; by the same means a man could ascend to the window to assist others.

R. T.

RE-OPENING OF ST. MARTIN'S, DORKING.

THE restoration of St. Martin's Church, Dorking, involving an expenditure of about 11,000*l*., now approaches completion. The church is so far rebuilt as to be reopened for divine service. The tower and spire only remain unfinished for the present. The new edifice is raised on the foundations of the ancient parish church. The demolition of the late church was commenced in August, 1872, and the foundations of the tower were laid by the late Bishop Wilberforce on the 29th of May, 1873. Upwards of 8,000*l*. have been subscribed or promised towards the amount required (namely, 6,644*l*. for the church, and about 1,450*l*. for the tower).

The chancel was rebuilt in 1866, at the cost of the late Mr. Henry Forman. The architect of the chancel was Mr. H. Woodyer, of Graffham, who was instructed to prepare plans for the completion of the church, removing the old central tower and spire, and reconstructing one at the west end. The plans, for the most part standing on the old foundations, consist of an elongation of the chancel by one bay, instead of the tower (formerly used by the choir), north and south transepts, the former of which contains the organ; a nave and its aisles of four 21 ft. bays, and south porch and a western steeple, the tower of which is already carried up as high as the nave roof, or very nearly to the bell floor.

The materials externally are black flint and Bath stone, and the style chosen is the Decorated; internally the blue Forest stone has been used for the piers, and the several arches are moulded. The clearstory is divided by piers into bays, each containing three engaged and two light windows. The spire, when completed, will reach a height of 200 ft., and springs from the tower, supported with an arrangement of pinnacles and carved buttresses. The south porch, when built, will be of considerable size, and carefully worked out. A portion only of the fittings of the nave have

at present been completed. The contractors are Messrs. Goddard, of Farnham, under the direction of Mr. Davidson, clerk of the works.

CHURCH AT LEYSDOWN.

THE Archbishop of Canterbury lately consecrated the new Church of St. Clement, Leysdown (Isle of Sheppy). The building which recently stood in the churchyard had no claim to the title of old, as it was only erected in the year 1734, and was quite unfit for the purpose to which it was devoted. There was an ancient church standing on the same site in the time of Henry III., and it must have been a building of handsome proportions. Much of the old stonework was found in taking down the late edifice, many battlements, mullions, tracery, &c.; also part of a Norman arch, giving evidence of the early origin.

The new church has been erected by Mr. C. Foad, of Whitstable, from the designs of Mr. R. Wheeler. It stands on the site of the early church, and encloses within its walls the ancient sanctuary. It is built of Kentish Rag and Bath stone, the inside being red brick, and has a nave, chancel, vestry, and porch.

The east end is considerably elevated above the nave, and the altar-table is covered with a rich cloth, principally worked by the wife of the vicar (Mrs. Lewis), the super-frontal being the work of Miss Rigdens, of Faversham.

A new vicarage-house is about to take the place of the present dilapidated structure.

BRISLINGTON CHURCH, NEAR BRISTOL.

THIS church has just undergone very extensive works of reparation, as also some additions. The chancel has been rebuilt and lengthened 10 ft.; the north chancel aisle (formerly used as vestry) has also been rebuilt, as both were in a very bad condition. The chancel arch, however, though somewhat crippled, was a genuine Mediæval feature, and, being fairly preserved, has not been touched. On the south side of the chancel an organ-chamber has been erected. The nave and south porch roofs have been opened out, their lath-and-plaster ceilings taken away, and new cornices put. A new panelled oak ceiling has been made for the north aisle in lieu of the lath and plaster. The south aisle roofs have been repaired and cleaned where necessary, with new cornices. The new chancel, organ-chamber, and chancel-aisle, all have oak panelled roofs, that to the chancel being widely moulded, and with ornamental cusped panels. The north chancel aisle is now provided with seats, and separated from the chancel by an open oak screen, while the vestry is placed at the west end, under the tower, divided from the nave by a panelled oak screen. The cumbrous galleries, with which the church had to an unusual extent been provided, have all been taken down. The nave arcades have been repaired, and on the south side rebuilt. All the high pews have been removed and replaced by open benches of American oak, with solid square-moulded panels. To the chancel more elaborate benches have been placed with open traceried fronts. The whole area of the church (except under the seating) has been paved with encaustic tiles, arranged by the architects. The chancel pavement is rich, with glazed and pattern tiles, and Plymouth marble steps. All the tiles are from Lugwardine, near Hereford. The old Jacobean pulpit has been cleaned and repaired, and put on a substantial stone base. New stone crosses to the gables have been placed, each of a different design. All the windows have been reglazed with cathedral glass, in ornamental lead quarries, of several tints. The new east chancel window is, however, filled with painted glass, designed by Messrs. Clayton & Bell, and is a memorial to the late Mr. W. H. P. Gore Langton, M.P. The stem of the old churchyard-cross has now been surmounted by a new cross of appropriate design. A considerable sum has been spent in rehanging the bells to the tower, with the addition of one new bell, new frames, &c. The total cost (exclusive of the bells and frames) will probably be about 2,900*l.* Messrs. Wall & Hook, of Brinscombe, near Stroud, were the builders, and the architects were Messrs. Benjamin Ferrey and Edmund B. Ferrey.

Fortune's Favours.—A jobbing painter in Anstruther, Fifeshire, has, it is said, by the death of a distant relative, come into possession of property valued at nearly 100,000*l.*

ST. PAUL'S, CLERKENWELL.

THE foundation-stone of the new church of St. Paul, Clerkenwell, was laid on Saturday last by the Earl of Shaftesbury, on the site purchased of the Chartered Gas Company. A large concourse of people assembled to witness the ceremony. The principal part of the money necessary for the erection of this church will be provided by the Ecclesiastical Commissioners of England, out of the sale of the disused church of St. Mildred, in the Poultry, opposite the Mansion House. The church will be erected from the designs of Mr. Ewan Christian, of Whitehall-place, and will seat about 550 people. The architecture will be of the thirteenth century. It will be a structure of Kentish-rag, with a small tower for the bells, and facing Central-street. The audience will be seated on chairs. The pulpit, font, communion-table, chairs, bells, and one or two silvered vessels, are from St. Mildred's, Poultry. The pulpit is quite an historical one, and is carved. There will be three entrances to the church,—one facing Central-street, another under the tower, and the third in Pear Tree-street. It is proposed to raise about 2,000*l.* more to complete the building, and also 1,200*l.* to be invested by the churchwardens to help to keep up the 100*l.* per annum which will be required to carry on the services. A sum of 750*l.* is being partly provided by the Bishop of London's Fund to erect a mission-house somewhere in or near Old-street.

THE ECCLESIASTICAL AND CHURCH ESTATES COMMISSIONERS AND THE CAPITULAR ESTATES.

THE following is a synopsis of the practical working of the "Commissioners' intention to appropriate the estates of the ancient customary tenantry of the Dean and Chapter of Durham."

The intentions of the Commissioners have caused considerable excitement in the North:—

Heretofore each 100*l.* of annual value has been so apportioned that lessors have had about 25*l.*, and the lessees, or customary tenants, the remaining 75*l.*

This is explained by the outrents being assumed at 3*l.* 10*s.*, and each septennial renewal at a year and a half's value, 150*l.*, or 2*l.* 10*s.* per annum, leaving a net revenue for the lessee of 75*l.* per annum.

This net revenue capitalised, at twenty-five years' purchase, gives the lessee an interest in the property, amounting to 1,875*l.* for every 100*l.* of annual value, while the lessor's interest in the soil, at the same rates, is 625*l.*

The terms at which the Commissioners would *sell* to the lessee their interest in the property, exclusive of the value of timber growing thereon, and exclusive of the material lying underneath, are:—

For the outrent, 30 years' purchase of 3*l.* 10*s.*	£ 105
For the septennial fine, 15 years' purchase, at 100*l.*	1,500
Making the Charge for Enfranchisement	£1,605

Add to this charge of 1,605*l.* the lessee's existing interest in the property, viz., 1,875*l.* as above shown, and it gives a total cost to him of 3,480*l.* for every 100*l.* rental. The cost of a customary freehold, minus the timber, of 100*l.* rental at 25 years' purchase is 2,500*l.*

The result of this figuring shows that for each 100*l.* of annual value, the Ecclesiastical Commissioners would obtain from their tenants a premium of about 1,000*l.*, and it appears that the Irish Commissioners for the same sort of property, or thing, accepted less than 130*l.*

SCHOOLS OF ART.

SOME time since the St. Martin's School of Art sent to the Sketch Clubs of the various metropolitan schools of art an invitation to join with them in the first annual competition between the clubs. The terms of the competition were as follow:—Three subjects were selected, comprising figures, landscape, and animals, the sketches for which were to be worked out in any material. The award of honour was to be made to the club producing the best aggregate amount of work, and prizes each of equal value were also to be awarded for the best sketch in each subject. The subjects chosen were, for figures, "Freedom"; for landscape, "Evening"; and for animals, any subject from the fables of Æsop.

The Lambeth School of Art being the only school which had responded to the invitation, the sketches sent in by the members of the Sketching Club of that school, and by the members of that of St. Martin's, were exhibited at the St. Martin's School, on Wednesday, the 24th ult. Mr. Parker (head-master, St. Martin's School) and Mr. Sparkes (head-master, Lambeth School) were in attendance.

Mr. Parker said he regretted the absence of Mr. Calderon, R.A., who had acted as judge in the matter, and had expressed himself much pleased with the sketches in general. He had, however, had no hesitation in deciding that Mr. Lucas (St. Martin's School) deserved the prize in the figure subject for his water-colour drawing of a tavern scene. He had also spoken in high terms of the illustration of Gray's "Elegy in a Country Churchyard," by Mr. Phillips (Lambeth), to which he awarded the prize for the landscape subject; and he had awarded the prize in the third subject to Mr. Beere (Lambeth), for his carefully-modelled figure of a couching lion. The award of honour was to the Lambeth School more especially on account of the high quality of the models exhibited by the students at that school.

Mr. Parker regretted very much that the Lambeth school was the only one which had answered the invitation, and expressed a hope that the challenge which would be sent out next year would be more generally accepted.

FROM VICTORIA.

St. Arnaud District Hospital.—The new district hospital of St. Arnaud will form a considerable addition to the charitable institutions of the colony. It is designed by Mr. Joseph A. Schneider, architect, Melbourne, and consists of two pavilions, each 45 ft. by 20 ft., with baths and nurses' rooms at the rear. Each pavilion accommodates twenty beds, and gives each patient 1,400 cubic feet of air space. The administrative block in the centre contains on the ground-floor committee, surgeons', and out-patients' room, dispensary and dispenser's quarters. The first-floor has a temporary ward for females, bath, bed-rooms, and other offices, and in the rear of this central building are the kitchen, pantry, cellar, baths, washhouse, laundry, and lavatory. There is a continuous system of hot and cold water supply, and the general ventilation is upon approved principles. The building is of brick, with cement dressings, and cost 3,500*l.* in construction.

Fitzroy Town-hall.—This building is described as one of the most imposing edifices surrounding Melbourne. It is situated at the corner of Moor and Napier streets, the front elevation facing the latter thoroughfare. The most striking feature of the building is the clock tower, which, if not strictly classical in its character, is lofty, and is a prominent object, visible from all parts of the surrounding neighbourhood. A loan of 25,000*l.* had been obtained, and the plans were prepared by Mr. W. J. Ellis, on which plans the structure has been erected. The large public hall is 102 ft. long, 47 ft. wide, and 33 ft. high; the council chamber is 40 ft. long, 24 ft. wide, and 16 ft. high, and has a library conveniently placed of 40 ft. by 20 ft. by 16 ft. The clock-tower, which has four stories, and an open pillared mansard roof, encircled by an ornamental iron railed balcony, is 17 ft. 6 in. by 13 ft. 6 in. in area, and 104 ft. high. The portico, which stands prominently out from the main building, has six Corinthian columns, each 28 ft. high, approached by a broad flight of cut blue-stone steps from the street. The interior of the hall is ornamented with Ionic pilasters, having a covered ceiling and enriched panels. The basement story is intended to be used as corporation offices, and the entire building will be of utility as a place where public meetings, concerts, or other reunions may be held.

Temperance Hall, Richmond.—The situation of the Temperance Hall, Richmond, is at the corner of Church-street and Darlington-parade. The style of architecture is Italian, the structure of brick, cemented externally, standing on a plinth of dressed Malmsbury blue stone. Accommodation is provided in the building for about 400 persons. On the left of the entrance-hall, which is 6 ft. wide, is a library 18 ft. by 12 ft., and on the right are the secretary's office and a cloak-room, also a wide staircase leading to a lodge-room above, 29 ft. by 18 ft. Attached to the front two-storied building is the assembly-hall, 66 ft. by 28 ft. and 20 ft. high, with stage and retiring-rooms at the rear. A feature in the hall is that the corners of the room are rounded. The means of ventilation and egress from the hall have been

carried out in conformity with the amended Health Act. The building has been erected under the superintendence of and according to designs furnished by Mr. J. A. B. Roch, architect, Richmond, at a total cost of 1,100*l.*

Clunes Town Hall.—The town-hall of Clunes, of which the *Australian Illustrated News* gives an illustration, is one of the most pretentious of the public buildings of the non-metropolitan boroughs of Victoria. It is built of brick and stone, and the tower can be seen from all parts of the district. The foundation was laid by Sir Charles Gavan Duffy, at the time he held office as chief secretary. The building comprises three bays or compartments; the first being the central, containing the large hall, mayor's and committee rooms; the second, the police-court, magistrates' rooms, &c.; the third or left wing, the borough offices. The approach to the central hall is by a flight of steps leading to a portico of columns with carved capitals, which support an ornamental arch. This leads into a good-sized vestibule, and a flight of stairs thence to the great hall, which is 142 ft. by 47 ft. Care has been taken in the construction to provide for ventilation, and for rapid egress in case of fire or other emergency. Above this apartment is the clock-tower, 104 ft. high, for which a large clock is being made by Mr. Sleep, of Ballarat. The designer has arranged for all the executive offices to be in close proximity to each other. The architects are Messrs. Fox & Oakden, of Ballarat; Mr. Davey being clerk of the works; and the contractor, Mr. William Cowland, also of Ballarat.

Town Hall, Wangaratta.—This township is one of the most important opened up by the North-Eastern Line, and has a population of about 4,000. Competitive plans for a town-hall were called for in December, 1864. Only a portion of the building is at present erected, viz.:—Council chambers, town-clerk's and surveyor's offices, and public reading-room. There is yet to be added a town-hall, 48 ft. by 30 ft., by 20 ft. high, with panelled ceiling; also, a public library and store-room. Tenders were called for in 1867, and the lowest for the whole was 3,670*l.*, but the council being unable to expend more than one-third of this amount, a portion only could be proceeded with. Now there is a railway communication, which has cheapened the price of materials, the rest of the building will perhaps be soon proceeded with. The architect is Mr. M. Egan, of Melbourne.

MOVABLE SCHOOLS, LIVERPOOL.

THE Liverpool School Board have decided to remove the Love-lane Schools to a new site at Walton-lane. These schools, together with those in Mill-street, our readers will remember, are constructed on a system invented by Mr. T. Mellard Reade, civil engineer, of Liverpool, by which they can be unscrewed, taken down in sections, and re-erected without damage to the various parts of the structure. The Love-lane schools will accommodate 400 children; and the tender of Messrs. Jones & Son for removing the buildings and fittings, playground-walls, latrines, laying drains, connecting with the sewers, laying on water, &c., complete, amounting to 247*l.*, has been accepted by the Board.

SOUTH NORWOOD SCHOOLS.

SOME time since we mentioned that designs for the South Norwood Schools, to be erected for the Croydon School Board, had been sent in by four architects, and gave their names. The design of Messrs. Rutley & Blackwell was accepted. Tenders for the same have been received by the Board.

The schools are planned to accommodate 580 scholars, with class-rooms, library, lavatories, and play-sheds; also, a master's residence. Quantities were supplied:—

Stephenson	£5,732 0 0
Hearle	5,487 0 0
Legg	5,422 0 0
Smith	5,274 0 0
Hyde	5,175 0 0
Preskell & Taylor	5,168 0 0
Holledge & Smallridge (accepted)...	4,915 0 0

Works of the late Owen Jones.—An exhibition of these works has been opened at the International Exhibition. Entrance, north end of Exhibition-road, Kensington. It includes not only designs but works in the shape of carpets, hangings, wall papers, and so on, as actually carried out, and will be found very interesting.

SCHOOL BUILDING NEWS.

Marnhull (Dorset).—An elementary Church of England school, for 160 children, and a residence for school teacher are about to be built at Marnhull, Dorset, upon a site given by the dowager Marchioness of Westminster. The materials are local rag stone, with Exbury brick for walls, and plain tiles for roofs. The style is an adaptation of domestic Gothic.

Dereham.—At a meeting of the Local School Board, G. H. Cooper, esq., chairman, tenders were opened for the erection of two new schools, to accommodate about eighty children, one at Toftwood and the other at Elsing-green:—Messrs. Nelson, Bros., Necton, 976*l.* 6s.; Mr. W. Larner, Dereham, 771*l.* 15s.; Mr. Pearce, Dereham, 820*l.*; Mr. James Munford, Dereham, 787*l.*; Messrs. Bone & Monument, Dereham, 448*l.*, Toftwood only. It was proposed and unanimously agreed that the tender of Mr. W. Larner (with the consent of the Department) should be accepted.

Seaton.—A new school at Seaton, intended to meet the educational requirements of that village and the adjoining village of Camerton, has been formally opened. The school, which stands on a plot of ground in the centre of Seaton, presented by Miss Pearson, of that place, is built from a design by Mr. George Watson, of Penrith. The style of architecture is Gothic, and the building consists of one large mixed school-room, one infant school-room, one class-room, and a master's residence. It is built of stone from a local quarry, covered with 1½ in. of cement, and furnishes accommodation for 238 children.

AS TO THE RIGHT OF WORKMEN TO LEAVE OFF AT A MINUTE'S NOTICE.

LITIGATION of a rather bitter character is taking place between the London street masons and paviors and Mr. Griffiths, contractor, stone-mason, and pavior, of Bridge Wharf, City-road. The case is this:—

Mr. Griffiths has been summoned by a number of his men to two police-courts for refusing to pay them wages due, and the cause of repudiation is undoubtedly one of more than usual interest to the workmen themselves, as regards their liberty to refuse joining the trade-unions.

Before Mr. Hannay, the magistrate, it was urged on the part of the employer of the men that those who had sued him had actually struck work because Mr. Griffiths employed hands who refused to join the paviors' trade-union. This impeachment the men did not deny, and contended that, as they were paid and engaged by the hour, they were at perfect liberty to pick up their tools any hour they liked without giving notice, it being the custom of the trade to do so; that the masters were in the habit of taking men on to work at six o'clock in the morning, and discharging them before breakfast, and what was "sauce for the goose was sauce for the gander." The men further complained about the bullying of a foreman, whom they would not work under.

In giving judgment, the magistrate said it was clear, from the evidence, that it was the custom of the trade for the men to leave work at any hour, and that they expected no better treatment from their employers. He was bound to say that the men had behaved very arbitrarily towards their fellow-workers, and that they had acted badly in the matter; but he must make an order in their favour, and direct Mr. Griffiths to pay the wages claimed, and he should allow 1*l.* 6s. costs. Notice of appeal was at once given.

VENTILATION OF LEEDS TOWN HALL.

SIR,—Before the Leeds Corporation, or other public bodies proceed further with the application of the much vaunted system of ventilation introduced there, it is desirable that a thorough investigation of what it professes to do, and of what it really accomplishes, should be made. Its advocates claim for it:—1. Simplicity; 2. Success in the purification of ill-ventilated rooms; 3. The absence of draughts.

As to the first claim, "Simplicity," it may be cheerfully conceded; indeed, a more explicit term would not be out of place. All that is done is to cut away a portion of the window-sash, leaving an opening which acts with the same "simplicity" and directness as the lowering of the window, or the removal of one of the upper panes would do. The action would be in both cases precisely the same. The opening is subject to no regulation, but is of the same size in all temperatures, and from whatever quarter the wind may blow.

2. The claim to "Success in the purification of ill-ventilated rooms." Perfect ventilation can only be effected by the removal of the warm air at the top of an apartment, and the replacing it by fresh air at the bottom. Now, this so-called "system" makes no provision for the removal of impure air, and, therefore, after its application all the worst evils arising from the presence of carbonised air remain.

3. The claim for "Absence of Draughts." Having explained above the manner in which fresh air is admitted by this plan, it will be evident that as the air is a fluid, and as cold air is heavier than warm air, not even the philosopher, whose grand discovery has been purchased by our Corporation, can prevent it from falling first upon the heads of the occupants of any room into which it is admitted from above, and then pleasantly diffusing itself around their feet. Having the pleasure of suffering from chronic catarrh and sore throat as the result of the introduction of this "system," I have a right to subscribe myself,

ONE WHO KNOWS.

STAINED GLASS.

Tradesmen's Home, Bradford.—The chapel attached to this building has just been further enriched by the addition of two stained-glass windows by Messrs. Camm, Bros., of Smethwick, near Birmingham. The subject is "The Good Shepherd," and "Behold, I stand at the door and knock." The figures are on a light ornamental ground, surrounded by a coloured border and bands of colour.

The Priory Church, Bournemouth.—This church has been further beautified by the addition of a stained-glass window, the gift of the Brander family, which makes the sixth two-light window that has been placed in this church by the same family. This window will complete the whole of the north aisle. The subjects are medallion, and represent, on the left hand, the Act of Charity, with the following text beneath, in quatrefoil,—"Inasmuch as ye have done it unto me"; whilst the right-hand side represents the Just Steward, beneath which reads,—"Well done, thou good and faithful servant." In the bottom of the window is an inscription. This window is the gift of Mr. W. M. Brander. The tracery of the window is filled in with ornamental cinquefoils, containing the arms of the family. The window is the work of Messrs. Cox & Sons, of Southampton-street, Strand.

Langtree Church, North Devon.—A stained-glass window has just been completed and placed in this church, to the memory of the late Rev. J. Guard, for thirty-three years rector of the parish. In the centre-light of the window is the representation of Christ blessing Children, and others, and in the two side-lights are seen the chief of the Apostles bringing disciples to be blessed by Him. The window is by Mr. W. H. Dixon, of London.

St. Andrew's, Derby.—A stained window to the memory of Miss Emma Georgina Clarke, sister of the Rev. J. Erskine Clarke, has been dedicated. The window was supplied by Messrs. Lavers, Barraud, & Westlake, of London, its subject being St. Simeon and St. Anna. The cost, 45*l.*, was defrayed by friends of the lady.

Church Parish Church, near Accrington.—The large east window in the chancel of this church has been recently filled with stained glass. The window is in the decorated style, and is divided into five compartments, in each of which are introduced three medallion subjects, the centre or middle one being considerably larger and different in form from the other two. In every medallion is depicted one of the principal events in our Lord's life, reserving the most prominent incidents for the large centre ones. The tracery openings are treated in harmony with the rest of the window, with floriated ornaments and border. The window was executed by Mr. W. Gardner, of the St. Helen's Stained Glass Works, after cartoons by Mr. Henry Casolain, of the same town, and led to the presentation of three other windows to the same church. It is a memorial window.

Fulford Church.—The large west window of this church has just been filled with stained glass by Miss Wilson, of Fulford, to the memory of her sister. The window is divided into four compartments, in each of which is a figure representing the Presentation in the Temple and the Epiphany, the figures being SS. Simeon and Joseph, and Anna and the Virgin Mary. Underneath the figures, in scrolls, is inserted part of the Song of Simeon. The window has been executed by Messrs. Morris & Co., London, from their own designs.

Chichester Cathedral.—Messrs. Clayton & Bell have just inserted stained glass in the east window of the Cathedral Lady Chapel as a memorial of the late Mrs. France, it being the gift of her husband. The subject portrayed is "Our Lord's Passion." The window is of five lights, and there are ten groups introduced, divided by the inscription taken from the Litany, "Oh, Lamb of God, that takest away the sins of the world; grant us Thy peace." The most prominent figure is that of our Lord upon the cross; other groups introduced represent His agony at Gethsemane, His arrest, trial before Pilate, fainting upon the cross, &c. A Latin inscription, setting forth the object for which the window is erected, runs along the bottom.

St. Luke's, Chatham-place, Hackney.—Two stained glass windows have been placed in this church, one representing various scenes of our Lord's Passion, and the other our Lord as the Good Shepherd and the Light of the World. They were both executed by Mr. W. H. Constable, of Cambridge.

All Souls' Church, Grosvenor Park, Camberwell.—Three stained glass windows have been unveiled in this church. They were the gift of a lady, a member of the congregation, in memory of her late husband. The artist was Mr. Constable, of Cambridge. The subjects are "The Betrayal," "The Agony," "The Crucifixion," "The Entombment," "The Last Supper," and "The Ascension."

Bagilt Church, North Wales.—A window, by Mr. Constable, of Cambridge, has been erected in this church, for Messrs. Louis and Septimus Howell, in memory of their father.

ARCHITECTURE AT UNIVERSITY COLLEGE, LONDON.

THE following is a list of the prizes, &c., awarded at University College in Professor Hayter Lewis's classes of architecture and construction:—

FINE ART.—*Ancient Architecture.*—Donaldson silver medal and first certificate, C. R. Pinke; second certificate, Harold A. Peto.

Mediæval and Renaissance.—Prize in books and first certificate, C. R. Pinke; second certificate, Harold A. Peto.

CONSTRUCTION.—*First Term.*—Donaldson silver medal and first certificate, Vyvyan Trubshawe; second certificate, C. R. Pinke; third certificate, W. H. Wood.

Second Term.—Prize in books and first certificate, Vyvyan Trubshawe; second certificate, C. R. Pinke; third certificate, W. H. Wood.

A CROMWELL FOR MANCHESTER.

AT the last meeting of the Manchester City Council, Mr. Alderman Heywood stated that in 1869, Mr. Noble, the artist, had asked the grant from the Corporation of a site in the New Town Hall, for a marble statue of Oliver Cromwell, for which he had received a commission from a lady in Manchester. It had since been found that a site for a colossal statue, which would be satisfactory to the artist, could not be found in the Town-hall, and the lady who had given the commission had resolved that the statue should be cast in bronze, so that it might be placed in the open air, upon a site to be assigned by the Council. He moved that a sub-committee should be appointed to make the necessary arrangements for selecting a suitable site for the statue. He stated that a letter had been received from Mr. Noble, in which he said that the statue would be completed in bronze in a month. The motion was unanimously adopted. The Town Clerk, on being pressed, said the statue was "the gift of a lady who was very dear to Mr. Alderman Heywood," and added that it was admitted to be one of the most successful statues that Mr. Noble had ever executed: a copy of the head in the Reform Club, London, was a subject of general admiration.

ARCHITECTS' ACTIONS.

ST. AUBYN *v.* RANDELL.

THIS was an action brought by an architect, before Mr. Justice Lush, to recover his charges for preparing plans for a school at Stoke, near Plymouth.

In 1869 a committee was formed at Stoke for the purpose of raising subscriptions to build a school. The defendant was chairman of this committee. Sir Edward St. Aubyn gave the site for the building, and stipulated that his nephew, the plaintiff, should be retained as the architect. Mr. Randell, on behalf of the committee, instructed Mr. St. Aubyn to prepare plans for the school, the cost of completing which should not exceed 1,000*l*. Mr. St. Aubyn prepared a set of plans, but said that the sum named by the committee was quite inadequate. These plans were submitted to the Council of Education but rejected, because no accommodation was provided for infants. No charge was made for this set of plans. Another set was prepared, and this set was approved by the Council of Education. Mr. St. Aubyn expressed an opinion that the cost of the building would be about 1,500*l*., and Mr. Randell said he was sure that the committee would think that too high. A tender was sent in of 2,300*l*., and these plans were abandoned on account of the expense. The site of the building was then changed for a spot where the building would not be so conspicuous, and consequently less ornament required. A third set of plans was prepared, and a tender sent in for 1,300*l*. The committee had previously expressed a desire that the building should not cost more than 1,200*l*. These plans were not carried out, and the scheme was abandoned. The reason for this did not appear. Mr. St. Aubyn claimed 98*l*., being 60*l*. for the second set of plans and 36*l*. for the last set, besides 3 per cent. on 2,000*l*. for the second set, and 3 per cent. on 1,200*l*. for the last set. The defendant paid 46*l*. into court, being 36*l*. for the last set and 10*l*. for the second set.

Mr. Ferrey, a member of the Royal Institute of British Architects, was called, and said that although 2½ per cent. was the charge authorised by the schedule of the Royal Institute of British Architects for plans, elevations, and sections when the building is not carried out, 3 per cent. was in this case a fair charge, as working drawings had been prepared; and he said that plans, elevations, and sections in the schedule did not include working drawings.

His Lordship, in the course of a careful summing-up, directed the jury to consider whether the defendant had authorised the plaintiff to prepare plans for a building to cost 2,200*l*., and he drew their attention to the fact that when the account was sent in, in 1870, no objection was made to the charge of 60*l*. for the second set of plans nor for three years afterwards. He also asked them whether 2½ or 3 per cent. was the fair charge.

The jury returned a verdict for the plaintiff for 30*l*. beyond the sum paid into court.

THE CONCRETE MODEL BUILDINGS AT HASTINGS.

ON the statement of our agents, Messrs. Newington & Co., Lewes, I informed you that the above buildings were erected with Selenitic Cement. Messrs. N. & Co. have since discovered that they were in error, and that the Selenitic Cement they supplied was for other works. I regret the error.

THE MANAGER OF THE SELENITIC CEMENT COMPANY.

*** We trust the manager will be more careful another time before he calls upon us to insert a statement.

THE PIANOFORTE NUISANCE.

SIR,—Perhaps one of your correspondents can inform me if I have any remedy against my next-door neighbour who renders my house practically uninhabitable by the incessant "teaching" of music; the nuisance rendering it necessary to close some of the rooms entirely, and injuring the house as to letting. In "Ball *v.* Ray" (the Green and Stable case) Lord Justice Mellish seemed to think piano-playing a justifiable nuisance. It is of serious consequence to householders, as, if it is "so written in the law," any man may take a house in the middle of a row ("terrace"!) and very soon render his neighbours' houses on each side unbearable, so that they would be glad to sell on any terms. I am not prepared to say whether something of the kind is not at the root of the nuisance in my own case—noises of the most doleful kind being produced incessantly. W. H. P.

*** One of our correspondents was subject to this "musical" nuisance for several years, and was at last compelled to buy the house to get rid of the tenant, who in spite of notice to quit held on for nearly two years afterwards.

CASES UNDER THE METROPOLITAN BUILDINGS ACT.

D. S. OF HAMMERSMITH *v.* VAN SENDERS.

THE defendant, who had erected, at 259, Gold Hawk-road, a wooden fowls' house, of small dimensions, and attached it to a party-fence wall, was summoned before Mr. Ingham, at the Hammersmith police-court, for not giving notice in writing. His contention was that it was not a building. Mr. Knightley, the district surveyor, contended that it was "a building" within the meaning of the Act, and in support of that view read over the exempted buildings, amongst which such structures as the one in question find no place. He also read Sec. 69, which relates to dangerous structures, observing that if the structure in question was in a ruinous state, it would then be recognised as a "structure" or a "building," and urged that if it was in a dilapidated state the law took cognisance of it; that circumstance, together with the fact that it was not specially exempted, was sufficient to justify the enforcement of the rules of the Building Act. In this view the magistrate concurred and decided in favour of the district surveyor.

CONSECRATION OF A JEWISH SYNAGOGUE, MIDDLESBROUGH.

A NEW Jewish Synagogue, which has been erected in Brentnall-street, Newport-road, Middlesbrough, has been consecrated and opened for Divine service. The new edifice is a structure built of red brick, with stone dressings. It stands on a site between Brentnall and Baxter streets, and is seated "for 132 male adults." The building has been erected by Mr. Joseph Lord, for the contract sum of 1,650*l*., from the designs of Mr. Edward Tidman, architect, Middlesbrough. In the ceremony of consecration, the Chief Rabbi, Wardens, and others brought the Scrolls of the Law to the door of the new Synagogue, and the Rabbi exclaimed,—"Open unto me the gates of righteousness; I will enter them, and praise the Lord." The door being opened, the Rabbi and others entered in procession, with the scrolls in their arms. The procession then passed up the Synagogue, until it arrived at the ark; thence under a purple velvet canopy and round the Synagogue seven times; during each circuit psalms were chanted by the reader and choristers; and after the seventh circuit of the Synagogue had been made, the curtain in front of the ark was withdrawn, the folding doors were opened, and the scrolls deposited. The canopy was then removed from the centre of the Synagogue, and the afternoon service was proceeded with. In front of the ark was a maroon-coloured velvet embroidered curtain.

MAIDSTONE LOCAL BOARD SURVEYORSHIP.

A MEETING of the Maidstone Local Board has been held, to appoint a surveyor, in the place of Mr. Livingstone, who has gained a similar position at a higher salary in London.

Seven gentlemen who had been placed on the list, selected from the sixty-two candidates, were in attendance, and examined. They were,—Messrs. Anscomb, and Bridge (Maidstone), Morgan (Southampton), Robson (Westham), Watson (Crewe), Willard (Tunbridge Wells), and Stovin (Sheffield); and finally Mr. Anscomb was appointed.

The Board provided a luncheon at the Star Hotel for the candidates, and a couple of hours were accordingly passed in a very pleasant and friendly way. Mr. Livingstone occupied the chair, and Mr. Anscomb the vice-chair; and the health, both of the outgoing and incoming surveyors was heartily drunk. In the evening, a number of Mr. Livingstone's friends entertained him at the Bell Hotel. Mr. T. Wells presided.

MEMORIALS TO PUBLIC MEN.

THE first of the series of statues of distinguished statesmen which it is proposed to place in the ornamental gardens known as Parliament-square, opposite Palace-yard, is now nearly completed, and the full-sized figure in bronze of the late Lord Derby, the work of Mr. Noble, sculptor, will be hoisted on the pedestal erected for it. The site is in the centre of the southern garden. The base is of polished red Aberdeen granite, and the cornice of the solid die above is relieved by a chain of oak-leaves and acorns in bronze carried round the four sides, while similar leaves and acorns also run round the top of the columns. On each side of the die spaces are left which will be filled in with *bas reliefs* in bronze depicting the House of Commons, a Cabinet Council, the installation of Lord Derby as chancellor of the University of Oxford, and a scene typical of the exertions made by the distinguished statesman in relieving distress during the cotton famine. A similar monument is to be erected in the adjoining garden to Lord Palmerston. The statue is in hand, and it will occupy the central position in the ground facing Palace-yard.

ACCIDENTS.

Bristol.—The Foresters' Hall, Broadmead, has followed the lead of the Alhambra, and been totally destroyed by fire. On Monday evening nothing was observed to be wrong in any part of the building when the performance terminated. About half-past four on Tuesday morning flames and smoke were seen issuing from the roof, and the police and fire-engines were promptly on the scene. There was a good supply of water, but it was found impossible to save the hall. As usual with such places, it burnt very fiercely. The roof was almost completely destroyed. The premises were insured in the Royal and West of England offices in the sum of 6,000*l*., and the damage done is estimated at about 2,000*l*.

A Bridge destroyed by Fire.—A large wooden bridge on the high road between Doncaster and Sheffield and crossing the river Don near to Denaby Main, has been entirely consumed by fire, the damage being estimated at 500*l*. The bridge separates the townships of Denaby and Mexbro', and the loss will fall upon the two. The fire is supposed to have originated from a refuse heap which had been burning for several weeks past, within a few yards of the bridge.

Destructive Fire in Gray's-inn-lane.—Sage's Buildings, comprising an extensive block of premises, approached from Gray's-inn-lane by an archway, and extending some distance towards Leather-lane in a backward direction, and lying between Baldwin's-garden and Portpool-lane, have been ravaged by fire. The owner of the property, Mr. Sage, provided steam power, and more than a dozen trades were carried on on the premises. The newly-erected school in connexion with St. Alban's, Holborn, was attacked by the flames. The fire destroyed that portion of the building where it originated, and which was six stories in height, the roof of the school being burnt, and other damage done.

"The Cadogan and Hans-place New Roads and Improvements Bill" has been passed, and Royal assent given.

CHURCH-BUILDING NEWS.

Mitcham.—The new church at Singleton has been consecrated by the Bishop of Winchester. The edifice, which contains 550 sittings, has been built from designs by Messrs. Francis, of London, the total cost being 4,283*l.* The chief part of this sum has been the joint contribution of Mr. and Mrs. Harris, of Gorringe Park, Mitcham, who have also erected, at their sole cost, a parsonage and mission-room, on the adjoining ground. The amount of their gift is between 6,000*l.* and 7,000*l.* The site has been in part the gift of Emanuel College.

Gloucester. — The foundation-stone of All Saints' Church has been laid. The family of the Rev. T. A. Hedley, the first perpetual curate of St. James's, offered a contribution of 2,500*l.* towards the building of a new church in the district, one of the stipulations being that the chancel should be dedicated to the memory of their father, and that an equal sum be raised to complete the church. This offer was readily accepted, and liberal donations were made. About 1,700*l.* have been raised by subscription, and grants of 900*l.* will be made by the Church Building Society, the Diocesan Association, and the Warneford Trust. After some difficulty a site was obtained in Lower Barton-street, adjoining the Midland Railway, at a cost of 1,086*l.* Sir Gilbert Scott prepared plans for the church, and the contract was taken by Mr. James Clutterbuck for 4,860*l.* The structure will be of stone, with Bath stone dressings. It will consist of a nave, 76 ft. by 28 ft.; chancel, 34 ft. by 20 ft.; chancel aisle, 22 ft. by 15 ft.; south aisle, 76 ft. by 15 ft.; with vestry and south porch. Provision will be made by the erection of a blank brick wall for the addition of a north aisle should that be found necessary and possible. The windows will be traceried, and the roof timbered. Accommodation will be provided for 540 persons, with free sittings. Heating apparatus will be fixed.

Wookey Hole, near Wells, Somerset.—The nave of the church here, together with the lower portion of the tower (which serves for a porch), has just been completed. When finished, the entire design will comprise the tower, situate at the south-west angle, 38 ft. 9 in. high, with a spire, 45 ft. 6 in. high; a chancel, 24 ft. 6 in. long by 21 ft. 4 in. broad (the same width as the nave); vestry, 11 ft. by 8 ft. 6 in.; and organ-chamber, 10 ft. 6 in. by 8 ft. The length of the nave is 46 ft. 9 in.; the height up to the underside of the cornice, 15 ft. 6 in. The church will eventually accommodate 150 persons. The chancel arch has been built, with a temporary wall just beyond. The walls are principally built of the rough local stone, the freestone used being Doulting. Coupled shafts of Kilkenny marble, unpolished, sustain the chancel arch. Externally the roofs are covered with Broseley tiles. The ceilings are of deal, stained in two shades, but not varnished, and thus more capable of future coloured decoration. The seats are low open benches, skeleton framed, and are not fixed to the floor, which throughout the church is of encaustic tiles. The latter, around the font, and to the passages, are in ornamental patterns of different colours, arranged by the architects. The church is heated by one of Porritt's underground stoves. The windows are glazed in ornamental quarries of cathedral glass, variously tinted by white glass intermixed, the design of each window being different. The total cost, including boundary walls, will probably amount to upwards of 1,500*l.* Mr. Diment, of Bristol, was the contractor; Mr. Edward Brooks, clerk of works; and Messrs. Benjamin & Edmund B. Ferrey were the architects.

Stratford.—Trinity Church and burial-ground have been consecrated. The church is erected upon an elevated site in the village, not far from the old parish church and the rectory, and consists of nave, apsidal chancel, vestry, organ-chamber, vestry-porch, and tower at the south-west angle, in which is the principal entrance. The style is Twelfth Century, freely treated, and the building is faced externally with Mendip stone, rubble-worked, and Bath stone dressings both externally and internally. The tower is four stages high, with angle buttresses, the third stage having three piercings, with stone dressings and label moulds for clock dials. The west end of the nave has a triplet window, with stone rear arch, and the north and south walls two-light windows. The chancel has two single-light windows in each bay of the apse, and stone doorway to the vestry porch. The reredos of the chancel is of Bath stone, panelled. The roof of the chancel is open-timbered and boarded, the whole stained and varnished. To the feet of each principal are carved caps and bases, and polished marble shafts, and the nave principals have carved corbels. The timbers of the nave roof are open, but with moulded panels, which are plastered. The whole of the joiners' work (pews, &c.) is wrought in oak, and polished, the bench standards being cut and moulded. The roofs are covered with Broomhall tiles, the colour of which harmonises with that of the walling. The contract has been executed by Mr. J. W. Falkner, of New Kent-road. The architect is Mr. W. Wigginton, of Cornhill, who superintended the works. The plumbers' and glaziers' work was executed by Mr. Robert Hughes, of Faringdon. The peal of four bells is from the manufactory of Messrs. Warner & Sons; the clock, from Messrs. Gillett & Bland, of Croydon; and the organ, from Mr. H. Willis, of Camden Town. Mr. Grundy's patent apparatus is applied to heating the church.

Books Received.

Horizontal Wells: a New Application of Geological Principles to effect the Solution of the Problem of Supplying London with Pure Water. By J. LUCAS, F.G.S., of the Geological Survey of England. (Stanford, Charing-cross. 1874.)

EVIDENCE is here brought forward by Mr. Lucas to show that the larger accumulations of permeable beds are capable of yielding to subterranean galleries quantities of water far exceeding that which could be drawn from their surface.

The materials made use of in the paper, as the author names it, are arranged in chapters under certain headings, viz.:—1. To show need of a fresh supply of drinking-water to London. 2. Sketch of geological principles on which the proposition contained in this paper is based. 3. The principles applied to the case of London; account of geological formations from which supplies may be drawn. 4. Account of the excellent quality of their waters. 5. Statement of the main proposition,—how to obtain the largest possible proportion of quantity of rain falling upon them. 6. Position and heights above sea-level of galleries. 7. Calculations as to probable quantities to be collected by them. All details fall under one or another of these heads. An appendix, embodying the result of observations, has been added since the writing of the paper.

VARIORUM.

THE *Country* says:—"The return of owners of land and heritages in Scotland, recently presented to Parliament, affords much interesting information on the subject of the revenue yielded by its rod-fishings. The amount derived from these fishings varies considerably in different counties, for whilst in Elgin they are valued at 5,848*l.*, in Linlithgow they produce only a rent of 10*l.* Taken collectively, the rod-fishings of Scotland are at the present moment worth about 30,000*l.* per annum. The following are some of the figures contributed by the various districts: Aberdeenshire, 2,510*l.*; Argyleshire, 1,848*l.*; Inverness-shire, 3,012*l.*; Kincardineshire, 2,444*l.*; Perthshire, 2,010*l.*; Roxburghshire, 1,159; Sutherlandshire, 1,845*l.*; whilst the angling in Elginshire produces, as we have said, 5,848*l.* In a previous impression, we noticed a few of the rentals derived from the Scotch shootings. If to these are added the sums directly received for rod-fishings, the sporting rights at present let in Scotland yield little less than 270,000*l.* When the money necessarily spent by the various lessees is taken into the account, the total value of the fishings and shootings can scarcely be estimated at less than three-quarters of a million per annum."

"Charles Knight Memorial." — A subscriber complains of slow progress, and says,—"Spasmodic attempts are made to bring it before the public by means of advertisements, and this without the concurrence or even knowledge of the committee; no committee, I am informed, having been convened for upwards of twelve months. If active measures are not at once adopted, the public will surely have a right to ask that their money may be returned. I think, sir, that a meeting of the committee ought to be called at once, so as to ascertain what steps should be taken to augment the funds before the season again breaks up."

Miscellanea.

New Offices of "Reading Mercury."—These offices in the Market-place, Reading, are now open. They present a striking contrast to the old, dilapidated buildings, where, for more than a century, the publication of the *Reading Mercury* has been carried on. The front of the publishing-office is built of Bath stone, with Forest of Dean piers and Portland bases. The building, which is spacious and lofty, consists of basement and three stories. The style adopted by the architects is fifteenth-century Gothic, somewhat modified in the lower portions so as to adapt it to the requirements of a newspaper office. The part usually occupied by the cornice and fascia is adorned with elaborately-pierced, moulded, and carved projecting panel-work, somewhat resembling balconets in the Renaissance style, supported on richly-carved corbels flanked by bastions of moulded fan tracery, with grotesque figure bosses. The various departments have been planned to render it one of the most complete of provincial newspaper offices. On the first-floor are the editor's rooms and other apartments. Communicating with these premises are the printing-offices, the basement of which is occupied with the machinery. The composing-room is a lofty hall, 70 ft. in length, with a high-pitched roof. From the composing-room direct communication is obtained through the overseer's room [?] to the readers' and reporters' rooms. The plans for the buildings were prepared by Messrs. W. & J. T. Brown, and F. W. Albury, architects; and the contractors were Mr. Woodroffe, for the printing-offices, and Mr. Barnicoat, for the frontage and publishing office. The sub-contractors were Messrs. Searle, Wright & Shackel, Millington, Grover, and Harris. To re-erect the offices on the same site, and carry on the publication of a newspaper at the same time, involved obstacles of no ordinary nature.

Derby Central School of Science.—An excursion in connexion with this school has been made, by permission of Messrs. Crompton & Co., to the Stanton Ironworks in the Erewash Valley, and then subsequently to Deepdale. At Stanton they were courteously received, and shown everything which could interest them. Having viewed the mode of removing the "slag" or dross, and the moulds prepared to receive the iron in a molten state, the whole party were drawn up an inclined plane (steam being the motive power) to the top of the furnaces. Whilst there the party had the opportunity of seeing the internal appearance and capacity of the furnaces, one of the number being in process of repair. The machinery by which the blast is produced by atmospheric compression was witnessed in motion. After a general tour of the works, the students were conducted to the new premises in course of erection for Messrs. Crompton, where all the most recent improvements in iron smelting are to be utilised. Here the material for the furnaces is to be raised by a "lift." The gases generated are to be utilised in procuring steam power; the horizontal flue by which they are to be collected was traversed, and all the other manifold appliances in connexion with the new works were fully explained. On arriving at Deepdale, after a pleasant drive, the ruins of Dale Abbey were traced *in extenso*, and upon assembling at the solitary arch, which is the chief remnant of the pile, Mr. Richard Keene read the first part of an interesting paper on the subject.

Departure of a Derby Architect for Australia.—A farewell dinner, reported in the local *Advertiser*, has been given to Mr. Henry Brookhouse, architect, who is about leaving his native town to seek his fortune and better health in Australia. Mr. Alderman Barton presided, and Mr. Councillor Harpur occupied the vice-chair. There were also present Mr. Councillor Roe, Mr. Councillor Dusantoy, and about thirty other friends of Mr. Brookhouse. Mr. Harpur in wishing him "God speed" and a pleasant voyage, said he had known Mr. Brookhouse from a boy, and knew him to be a young man of no ordinary ability and talent, who, although he had practised as a professional man but three years, had already made a name for himself in his native town, and won the respect and esteem of all who knew him either in business or in his private capacity. Mr. Brookhouse had devoted much of his time and energy to forward schemes for the enjoyment and benefit of the public. Mr. Brookhouse goes to Melbourne by the *Antiope* from Liverpool.

Bristol Master Builders' Association.—The annual meeting of this association took place on Wednesday last week. A number of the members and friends from Bristol and Bath belonging to departments of the building trade visited Exeter, where they were joined by several tradesmen of that city. Having looked at the cathedral and admired its beauties and excellent workmanship, the lions of the place were done, and afterwards about forty sat down to dinner at the Globe Hotel. Mr. J. Yalland, president of the association, occupied the chair, and the vice-chair was filled by Mr. W. Coates, the treasurer. In the course of the after-dinner speeches, it was remarked that circumstances were continually arising which necessitated the cordial co-operation and united action of members of the building trade generally, while the want of it tended to encourage unwarranted demands on the part of the operatives. With a desire of promoting more united action, the members of the association have during the year reduced the entrance fee to 2*l.* 2*s.*, and the subscription to not less than 1*l.* 1*s.* It was reported that the funds of the association were in a very satisfactory state. Mr. Ambrose, Bath, responded to the health of the "Visitors," and also Mr. Moss.

A New Vegetable Market.—On Monday, at a meeting of the Court of Common Council, after several propositions relative to a new vegetable market had been discussed and rejected, the following motion by Mr. H. A. Isaacs was carried, namely:—"That whereas the site of the present Farringdon Market is of considerably greater value than that adjoining the Metropolitan Meat Market extension; and whereas the latter site has the advantage of frontages in four streets, and the further important advantage of contiguity to three principal lines of railway, which would enable growers living at a great distance from the metropolis to supply the London markets with fresh vegetables at prices considerably below the current market values; and whereas a new market could be erected on the said latter site without displacing the trade at present carried on in Farringdon, this Court is of opinion that in the interests of the traders of Farringdon Market and of the poor of this metropolis, and also financially of the Corporation, a new fruit and vegetable market should be erected on the site adjoining the new meat and poultry market extension at Smithfield."

The Purchase of Northumberland House. At a meeting of the Metropolitan Board of Works last week, the Works Committee recommended that a cheque for the sum of 497,000*l.* be drawn in favour of his Grace the Duke of Northumberland and Earl Percy for the purchase-money of Northumberland House and adjacent property, and a cheque for 2,100*l.* in favour of the Duke of Northumberland for the purchase-money of Nos. 2 and 3, Northumberland-court, and a cheque for 2,500*l.* in favour of Messrs. J. & J. Phillips for stamp-duty on conveyance, and a cheque for 1,000*l.* in favour of the solicitors of the duke, in full satisfaction of their costs and expenses in the matter; that the committee be authorised to make such arrangements as they may think desirable for permitting the public to view Northumberlad House and grounds, and to take all necessary steps for the protection of the property after it has been handed over to the Board. The committee have given directions for insuring Northumberland House against fire for a further period of three months from the 24th ult. for the sum of 5,000*l.* On the motion of Mr. Runts the report was adopted.

Christ Church, Westminster Bridge-road.—The memorial-stone of the Lincoln Tower of Christ Church, Westminster Bridge-road, towards which the Americans, through the Rev. Newman Hall, have contributed one-half the cost—2,500*l.*,—is to be laid on the 23rd prox. The American Ambassador is to lay the stone, and several M.P.s and other gentlemen of eminence are to take part in the proceedings. Of the British half of the subscriptions, 1,200*l.* have still to be raised.—*South London Chronicle.*

House of Lords Frescoes.—Lord H. Lennox informed Mr. Hankey in the House, that he had communicated with Mr. Cope, R.A., with reference to covering with glass the eight frescoes in the passage leading to the House of Lords, and Mr. Cope thought it might be desirable. If the pictures were retouched he (Lord H. Lennox) would give orders for the work to be done.

Opening of the Delancey Fever Hospital, Cheltenham.—The completed portion of the Delancey Fever Hospital has been formally opened. The institution is situated at Pilley, Leckhampton, and the design of the trustees is to erect a complete institution for the reception of all kinds of infectious fevers; but circumstances led them to proceed with the work in sections. The block just opened is for the reception of small-pox cases. The architect is Mr. Middleton, and the contractors are Messrs. Channon. The blocks will contain eight beds for general patients, two private rooms, and accommodation for convalescents, making in all fourteen, besides which a nurse's room and small surgery are provided. It has its own kitchen and cooking arrangements. In external appearance it consists of a long block of one story in height, built of red coral bricks, with black bands, and dark-brown tile roof. The window mullions and tracery are of stone. In the interior the rooms are partially lined with white glazed bricks, the passages with glazed and plain bricks in patterns. The gas-lighting is so arranged that the flame is enclosed entirely, and the products of its combustion are carried away by a draught of its own creating.

The Ragged School Shoe-black (Central) Society.—The new building which has recently been erected for the committee of this institution on Saffron-hill has been opened. Mr. Martin Wade, the honorary secretary, made an interesting statement as to the work accomplished during the twenty-two years of the society's existence, and also gave a few particulars relative to the new building. Since 1851 more than 3,000 boys have passed through the institution, and their earnings have amounted to 45,638*l.* Many of these young men are in respectable situations in life, and instances were given showing that some of them are in receipt of handsome salaries. The institution is self-supporting, but the committee have been obliged to appeal to their friends and the public for assistance to defray the cost of the new building, which will be about 3,800*l.*, of which sum the boys themselves have contributed out of their earnings no less than 1,500*l.* The building is plain and substantial. Mr. M. C. W. Horne was the architect; Mr. H. R. Wagner, the builder and contractor, Victoria Works, Buckingham-gate.

Opening of a Coroner's Court House.—The Coroner's Court-house, St. Mary's Chapel of Ease, Holloway-road, already mentioned by us, has been opened for use. This Coroner's Court-house and new Mortuary is the first of its kind in London, and has been erected by the Vestry of Islington, under the supervision of their Sanitary Committee, in a portion of the burial-ground attached to the Chapel-of-Ease. The building consists of a coroner's court-room properly fitted up; adjoining the court-room a waiting-room for witnesses and others, fitted with lavatory, &c.; while at either end of the building a mortuary is arranged with every sanitary improvement,—one fitted with dissecting-tables, sinks for washing, and everything necessary for post-mortem examinations, the other for the reception from private houses of the bodies of persons dying from contagious diseases. The building has been erected at the cost of about 640*l.*

Ancient Human and other Remains.—An interesting discovery has been made by workmen at Cividale, near Goerz. While digging in the Piazza di Paolo Diacono the men came upon a stone slab, concealing an ancient tomb. Within this lay the few bones spared by time of a warrior, enveloped in a rich gold embroidered vesture, and surrounded with magnificent armour and insignia of high office. The tomb contained among other things several crosses, one of precious stones, and a small flask of clear water. From the inscription, deciphered with some difficulty, it appears that the bones and armour are those of no other than Gisulph, Duke of the Longobards, who was killed in battle in the year 611.

Photographs on Tombstones.—In Shrewsbury a practice has grown up of affixing to the tombstones in the cemetery the photographic *carte-de-visite* of the person buried beneath. The exhibition naturally attracts the curious, who walk over the grass to the detriment of the property of the Burial Board, who, "by allowing the grass to grow long, and then cutting it," realise from 20*l.* to 30*l.* a year, and consequently view with the gravest displeasure this new manifestation of mourning.

Oxford Architectural Society.—An excursion was recently made by the Oxford Architectural and Historical Society to East Hagbourne, a distance of a mile and a half from Didcot Station, where a timber house of the fourteenth century was pointed out by Mr. James Parker. The church was visited, and Mr. Parker described at length its peculiarities. The party afterwards went to Blewbury Camp, the most extensive of the British fortresses in the neighbourhood, and thence on to Moulsford. Some made across the fields from the site of the Camp to Lowbury, accompanied by the Rev. Mr. Hooper and Mr. Parker, who pointed out the probable site of the battle of Æscesdun. The third and last excursion of this society for the present term was devoted to visiting Dorchester and Ewelme.

Annual Excursion of the Yorkshire Architectural Society.—A visit to Kirby-moorside, Kirkdale, Lastingham, and Appleton, has been made by the members of the York Architectural Society, who thus spent an agreeable day in Ryedale, North Yorkshire. To the number of nearly twenty (a few ladies included) the party went by the York railway in a special saloon carriage attached to the ordinary train, for Kirbymoorside. The journey throughout was a thoroughly enjoyable one. The programme for the day's excursion included Kirkdale, with the Saxon sundial, and the quarry, showing the entrance to the famous caves in which numerous bones,—of various species of animals,—have been discovered; Lastingham Church, with its crypt and altar-piece; and the church of Appleton-le-Moor.

The Channel Passage as a Ford.—A correspondent, signing "Henry D. Muirhead," writes us, believing that he has solved this problem. His idea is to have a bridge on wheels, 150 ft. in diameter, and supporting a platform 500 ft. long, and capable of being raised or lowered some 200 ft., to suit the varying depths of the British Channel. This apparatus he proposes to tow or run across by means of wire-ropes—cables, we should have said,—worked by stationary engines on either side. On the platform might be rails on which trains of railway carriages could be carried. This idea is not new, and we need scarcely say that we do not agree with the projector that the problem is thus to be solved.

Discoveries at Durham Cathedral.—Excavations have been commenced at Durham Cathedral. They have been limited to the site of the eastern portion of the chapter-house, which is now being cleared out, in order to show the original foundations. Under the flooring of the old chapter-house many of the early bishops of Durham were buried. Some of the slab-covers of the vaults of the early occupants of the Episcopal see have been found apparently undisturbed. These, and others which may be found in like condition, will be repaired, and the whole area kept open. A portion of the apsidal termination has been met with. The old chapter-house was demolished by the cathedral restorers about the year 1780.

The Munich Gallery.—A collection of pictures, varied in style as in subject, but chiefly of German origin, is now on view at the Munich Gallery, in Great Marlborough-street. The most noteworthy works are two cartoons of great size by Kaulbach, the one representing an incident of the Spanish Inquisition, the other illustrating an event of a far pleasanter and more imposing character,—the opening of the Scottish Parliament in Edinburgh by King James II., A.D. 1532. Professor Conrader's picture, entitled "The Last Moments of the Emperor Joseph II. of Austria," apart from its artistic merit, which is not inconsiderable, possesses great historic interest. A work by Carl Piloty has been added recently.

"Hospital Saturday."—We are asked to assist in this movement, having for its object, it is stated, the collection of subscriptions from the working classes for the benefit of the hospitals and dispensaries of the metropolis. We do not sympathise with it. Why should any attempt be made to separate the almsgiving of working men from those of other classes? It has been thought desirable to institute what is known as Hospital Sunday, and it seems to us something like an impertinence to suppose that working men who are disposed to give their aid will not do so unless a separate day be set apart for them. The desire which some people have to thrust themselves before the public leads to many unwise acts.

Lassington Church.—Since the commencement of the restoration of this church remains of ancient (probably thirteenth-century) painting on the east wall of the chancel have been discovered, and brought to light from beneath several subsequent coats of colour. The architects, Messrs. Medland & Son, have traced a complete architectural design of two arcades, but no figures. The lower arcade consists of six bays, three on either side of the altar, with red columns and cusped arches, the spandrels being filled with floriated ornament. Above the arcades are remains of a running decoration, with chevron ornament on either side, forming a gable over the whole.

The Electric Light on the Westminster Clock Tower.—In reply to Mr. Torrens in the House of Commons, Lord H. Lennox stated that since the discussion on this subject, many hon. members had expressed to him a wish that the light should be made permanent, whilst none had expressed a contrary opinion; and that being so, he would during the recess endeavour to see what were the best means to be adopted.

TENDERS

For alterations and additions to the Dolphin Tavern, Coleman-street, City. Mr. J. E. Saunders, architect. Quantities not supplied:—

Young	£731 0 0
Bowles (accepted)	696 10 0

For the erection of a pair of cottages at Grosvenor-rise, Walthamstow, for Mr. D. Roberts. Mr. F. W. Searle, architect:—

Reid	£713 0 0
Rist & Brown	496 0 0
Tubby (accepted)	495 0 0
Muggleton	421 15 4

For the erection of a house in the Bedford-hill-road, Balham. Mr. Thos. Clarke, architect:—

Taylor & Parsons	£2,718 0 0
Holden & Son	1,950 0 0
Gooding	1,760 0 0
Mills	1,495 0 0

For an addition to Tenby House, Ramsgate, for Mr. J. Venten. Proprietor to find all bricks. Mr. John R. Collett, architect:—

Lavender (accepted)	£212 10 0

For new laboratory, and alterations to anatomical department, King's College, London. Messrs. Wigg & Oliver, architects:—

Robinson	£3,087 0 0
M'Laclan	2,797 0 0
Holland & Hannen	2,678 0 0
Jackson & Shaw	2,653 0 0
Ennor	2,639 0 0

For new offices, Stanley Works, Chelsea, for Messrs. A. Ransome & Co.:—

		Cr. Old Materials.
Hill, Higgs, & Hill	£2,780	£40
Jackson & Shaw	2,689	50
Clark & Bracey	2,659	10
Nixon	2,619	30
Gammon & Sons	2,614	75
Trollope & Sons	2,583	28
Adamson & Sons	2,427	66

For entrance-lodge, at the Hospital for Consumption, Brompton:—

	Bath Stone.	Portland Stone.
Wilson	£3,270	£2,375
Stevenson	2,061	2,221
Bull	2,006	2,116
Jackson & Shaw	1,907	2,037
Wilks	1,868	1,981
Oliver & Sons	1,850	1,903

For additions to the administrative department of the St. Pancras baths and washhouses. Mr. Henry H. Bridgman, architect:—
Willsons, Brothers (accepted).

For additions and alterations at Downing College, Cambridge. Mr. Edward M. Barry, architect. Quantities supplied by Mr. J. H. Strudwick:—

Holland & Hannen	£21,569 0 0
Peto, Brothers	21,390 0 0
Downs	20,973 0 0
Trollope & Sons	20,483 0 0
Booth	19,870 0 0
Perry	19,145 0 0

For erecting villa residence, with coach-house and stables, at Barnes, for Mr. J. R. Wedgwood. Mr. J. Palmer, architect. Quantities by Mr. W. Barnett:—

Stimpson	£2,480 0 0
Chamberlain, Brothers	2,309 0 0
Thorn	2,375 0 0
Adamson	2 289 0 0
Boyce	2,254 0 0
Trevens	2,223 0 0
Hunt	2,125 0 0

For chancel, &c., to Trinity Church, Hampstead. Mr. H. S. Legg, architect. Quantities supplied by Messrs. Arding & Bond:—

Nightingale	£4,155 0 0
Foster	4,102 0 0
Newman & Mann	4,080 0 0
Hill, Higgs, & Hill	4,015 0 0
Manley & Rogers	3,975 0 0

For alterations and alterations to Woodthorpe, Willesden. Mr. Wm. Bradbear, architect:—

Knight	£275 0 0
Prebble & Morley	273 10 0
Steel	268 16 0

For the erection of coach-house and stabling, at Hampton Lodge, Stonebridge Park. Mr. Wm. Bradbear, architect:—

Prebble & Morley	£190 0 0
Steel	188 0 0

For finishing a pair of villa residences, at Wallington, Surrey. Mr. Wm. Bradbear, architect:—

Crowley	£1,489 0 0
Steel	1,253 0 0
Prebble & Morley	1,040 0 0

For alterations and additions to the church of St. John the Baptist, Upper St. James-street, Brighton. Mr. Gilbert R. Blount, architect:—

Bruton	£2,200 0 0
Lockyer	2,102 0 0
Cheesman	2,000 0 0
Wright & Goodchild	1,995 0 0
Botting	1,891 0 0
Batching & Webber*	1,891 0 0

* Won by drawing lots.

For the erection of a shop and warehouse, Nos. 185 and 186, Tottenham-court-road, for Mr. G. F. George. Messrs. J. Tarring & Sons, architects:—

Kelly, Brothers	£2,683 0 0
Jackson & Shaw	2,641 0 0
Wild	2,610 0 0
Cooke & Green	2,588 0 0
Shurmur	2,572 0 0
Roberts	2,538 0 0
Boden	2,390 0 0
Brindle	2,318 0 0

For alterations at the Westmoreland Arms, George-street, Manchester-square, for Messrs. Combe & Co. Mr. H. E. Cotton, architect. Quantities not provided:—

Hyde	£1,960 0 0
Newman & Mann	1,940 0 0
Foxley	1,916 0 0
Baun	1,725 0 0
M'Lachlan	1,540 0 0
Williams & Son	1,477 0 0
Toms	1,370 0 0

For works, Amhurst-road, Hackney, for Mr. M. Rose. Mr. T. K. Green, architect. Quantities prepared by Mr. Poland:—

Barker	£2,885 0 0
Sharpington & Cole	2,833 0 0
Newman & Mann	2,486 0 0
Simpson & Baker	2,462 0 0
Scrivener & White	2,379 0 0
Salmon	2,263 0 0

For gardener's house, vineries, &c., at Castlebar, Ealing, for Mr. F. F. Kelly. Mr. C. N. Beasley, architect. Quantities by Mr. Mallett:—

Silver & Sons	£1,083 0 0
Nightingale	1,080 0 0
Bays & Ramage	1,038 0 0
Nye	997 0 0
Newman & Mann	991 0 0
Adamson & Sons	958 0 0

For sundry works, No. 14, King William-street, City, for the Lancashire Insurance Company. Mr. C. J. Phipps, architect. Quantities not prepared:—

Newman & Mann	£1,478 0 0
Lugg	1,076 0 0

For alterations to St. Laurence's Church, New Brentford, Middlesex. Quantities supplied:—

Wall & Hook	£2,500 0 0
Jerrard	2,400 0 0
Gibson, Brothers	2,390 0 0
Doog, Brothers	2,345 0 0
Avis & Co.	2,240 0 0
Adamson & Sons	2,197 0 0
Brunsden	2,175 0 0
Goddard	2,150 0 0
Nye & Son (accepted)	2,026 0 0

For new schools, Orchard-street, Hackney, for the London School Board. Mr. E. R. Robson, architect:—

Fox	£9,350 0 0
Sewell & Son	8,116 0 0
Scrivener & White	8,046 0 0
Wicks	7,990 0 0
Tarrant	7,894 0 0
Ennor	7,868 0 0
Newman & Mann	7,846 0 0
Sheffield	7,784 0 0
Pritchard	7,757 0 0
Perry & Co.	7,650 0 0

For new studio, Cadogan-gardens, for Mr. F. Moscheles. Mr. H. Petit, architect. Quantities by Messrs. G. Lansdown & Pollard:—

Stephenson	£1,500 0 0
Bird	1,561 0 0
Adamson & Sons	1,493 0 0
Mills & Sons	1,490 0 0
Stimpson & Co.	1,440 0 0
Cullum	1,396 0 0

For alterations at No. 35, Norfolk-street, for Mr. Holliday. Mr. E. C. Robins, architect:—

Newman & Mann	£405 0 0
Carpenter	275 0 0

For rebuilding the Peacock public-house, Maiden-lane, Covent-garden. Mr. Chas. Fowler, architect. Quantities by Mr. H. Lovegrove:—

Conder	£1,699 0 0
Longmire & Burge	1,313 0 0
Wall	1,285 0 0
Crabb	1,178 0 0

For rebuilding Strewan-mews, King's-road, Chelsea, for Messrs. Cribb & Williams. Mr. F. N. Kemp, architect. Quantities supplied by Mr. E. J. Styles:—

Begwood	£721 0 0
Steavens	679 0 0
Godbolt	675 0 0
Dredge	600 10 0

For proposed master's house, and other works, at St. Paul's Schools, Bethnal-green. Mr. Thomas Pocock, architect:—

Parsons, Brothers	£550 10 0
Bullivant	537 0 0
Hopton	523 0 0

For alterations and repairs to No. 23, Bedford-square. Mr. Lewis Solomon, architect:—

Blake & Rampton	£584 0 0
Willson	447 0 0
Woods	387 7 9
Richards (accepted)	385 0 0

For repairs to No. 13, Abbey-road. Mr. Lewis Solomon, architect:—

Colley	£315 0 0
Clark	309 2 0
Cohen	235 0 0
Woods (accepted)	216 0 0

For the erection of a malt-kiln and malt-store, at Bell-lane Maltings, Wandsworth, for Mr. W. E. Bullock. Mr. G. Seamell, architect. Quantities supplied by Messrs. Curtis & Son:—

Wigmore	£1,400 0 0
Sharpington	1,197 0 0
Cole & Green	1,184 0 0
Nightingale	1,183 0 0
Wagner	1,136 0 0
Grimwood	1,067 0 0

TO CORRESPONDENTS.

Erratum.—In our report of Mr. Beresford Hope's speech at the Architects' dinner, he is stated to have said that he had heard from a "Vice-Chancellor," that to be a man of peace-at-any-price was to be a "power." The last word should have been "coward."

J. N. (we do not know of any other list than the one given).—E. I. V. (it has been proposed several times. A pamphlet on the subject was mentioned in our columns a few months ago).—H. H. B. (should send amounts).—S. P. D. (please let us see the photographs).—H. D. M.—R. W.—H. W.—H. & B.—F. F.—H. H.—S. H.—C. P.—R. W.—H. P.—E. A. H.—T. E. K.—J. J. L.—C. H. P.—W. B.—Dr. R.—S. S.—H. L.—S. A. & Co.—W. C. T.—I. B. W.—E. B.—W. H. P.—L. S.—H. J. & Son.

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